TEXTILE WORLD

FEBRUARY, 1961
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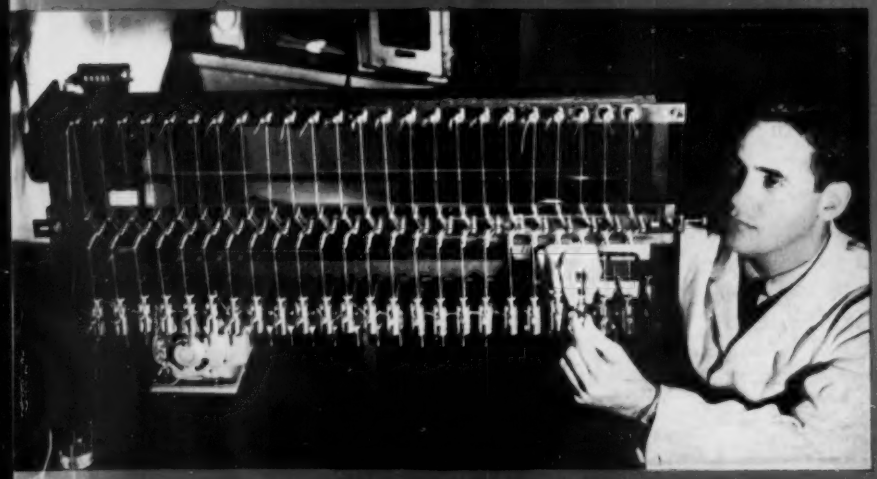

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Air Conditioning helps **FLAGG · UTICA** *get Peak Efficiency at Grantville Mills*

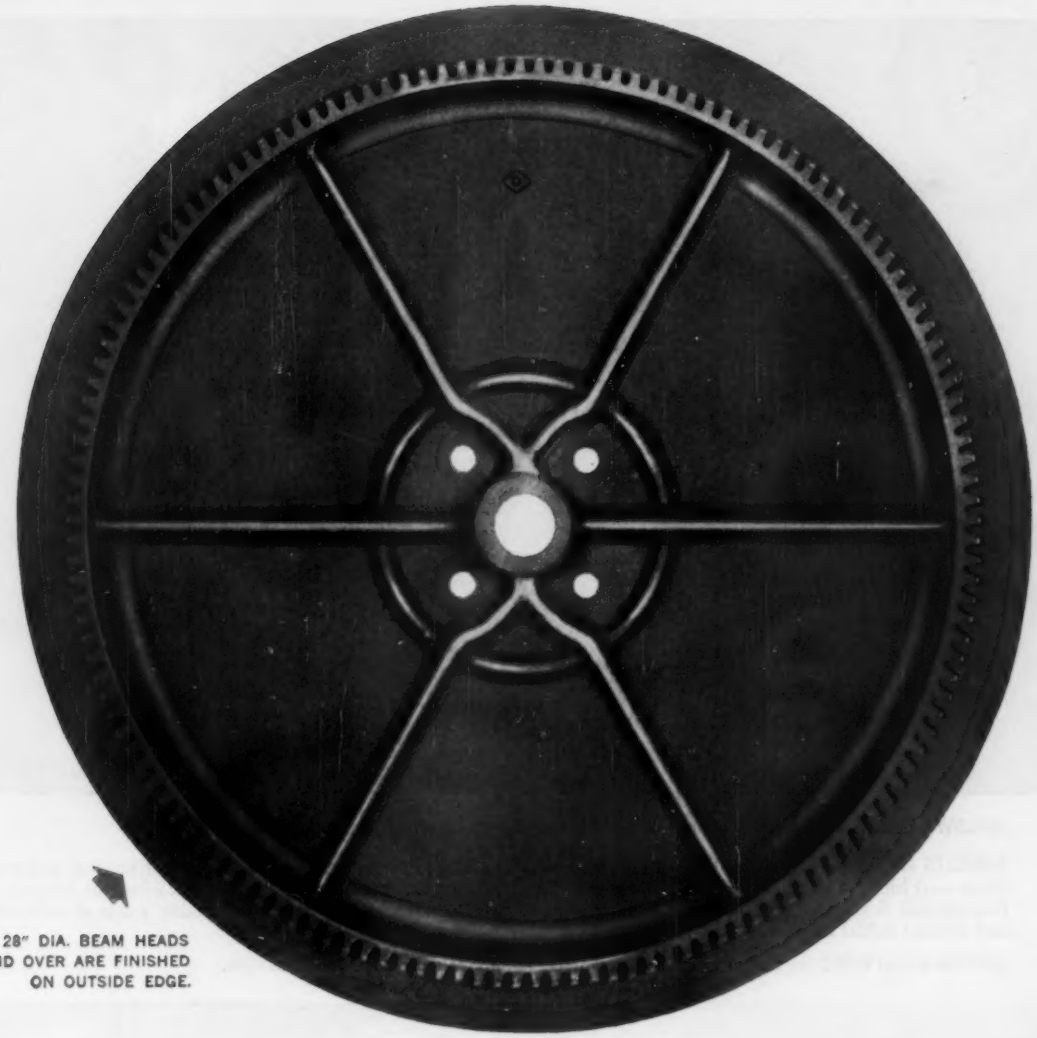
Grantville Mills modern winder room is shown in large photo. Note anemostat for distributing temperature controlled air and atomizers to maintain humidity. Insert shows compressor, fan unit and air washer.

When Flagg-Utica Corporation, producers of quality knit-wear, acquired the Grantville Mills at Grantville, Georgia, they launched a complete modernization program. Realizing that modern high-speed machinery performs best in a controlled atmosphere, the decision was made to refrigerate the yarn mill.

Robert and Company Associates was commissioned to design the system, take competitive bids and supervise the installations, to assure Flagg-Utica of accurate climatic control at minimum cost.

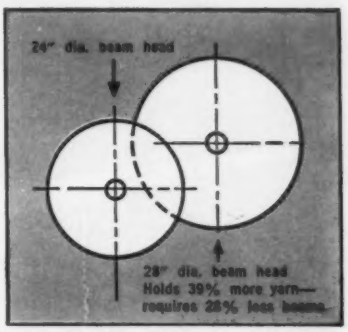
If air conditioning is included in your modernization plans take advantage of Robert & Company's 42 years experience in working with the leaders in the textile industry.

ROBERT AND COMPANY ASSOCIATES
Textile Engineering Division
ATLANTA



28" DIA. BEAM HEADS AND OVER ARE FINISHED ON OUTSIDE EDGE.

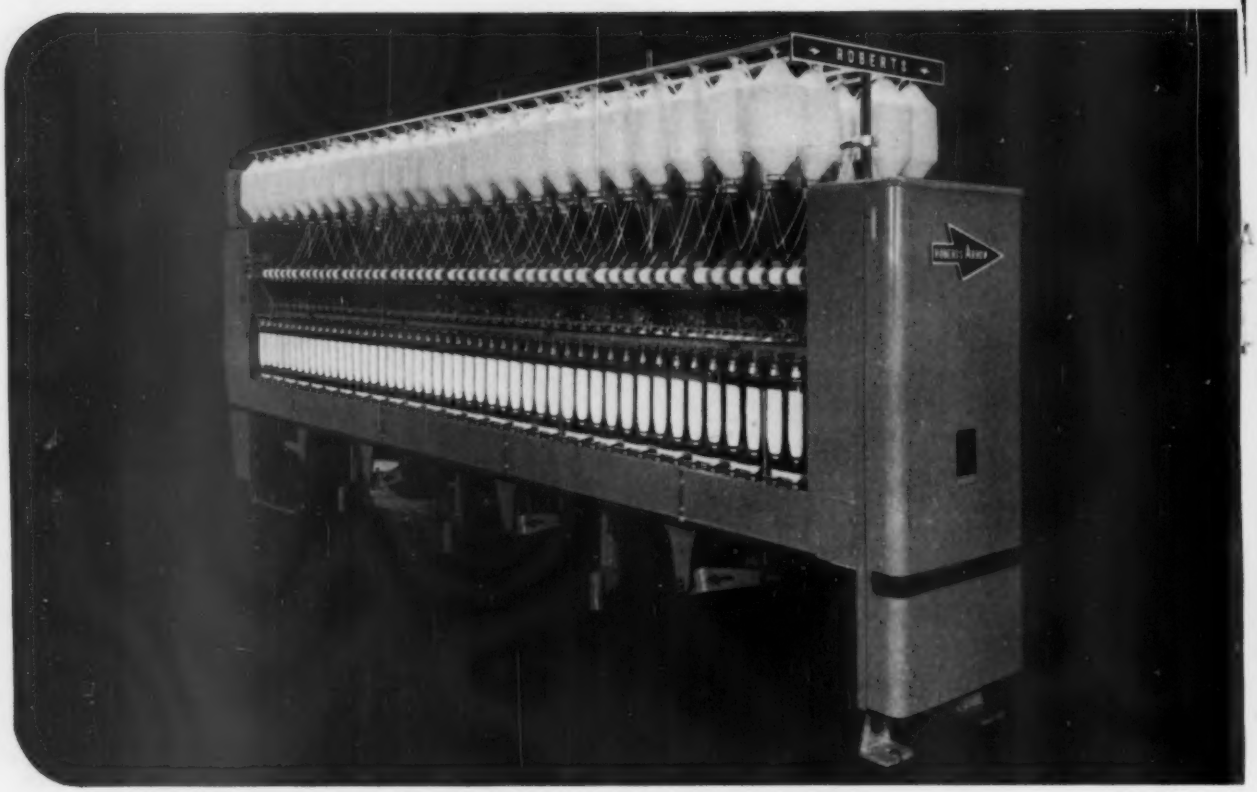
GREATER MILL SAVINGS POSSIBLE WITH LARGER LOOM BEAM HEADS



Insure these savings by specifying Draper Beam Heads. Made from laboratory-controlled materials, with accurate foundry casting and precision machining, top quality Draper Beam Heads protect your changeover investment. Your Draper representative will be glad to investigate the savings you can realize through replacing with larger beam heads.

DRAPER CORPORATION

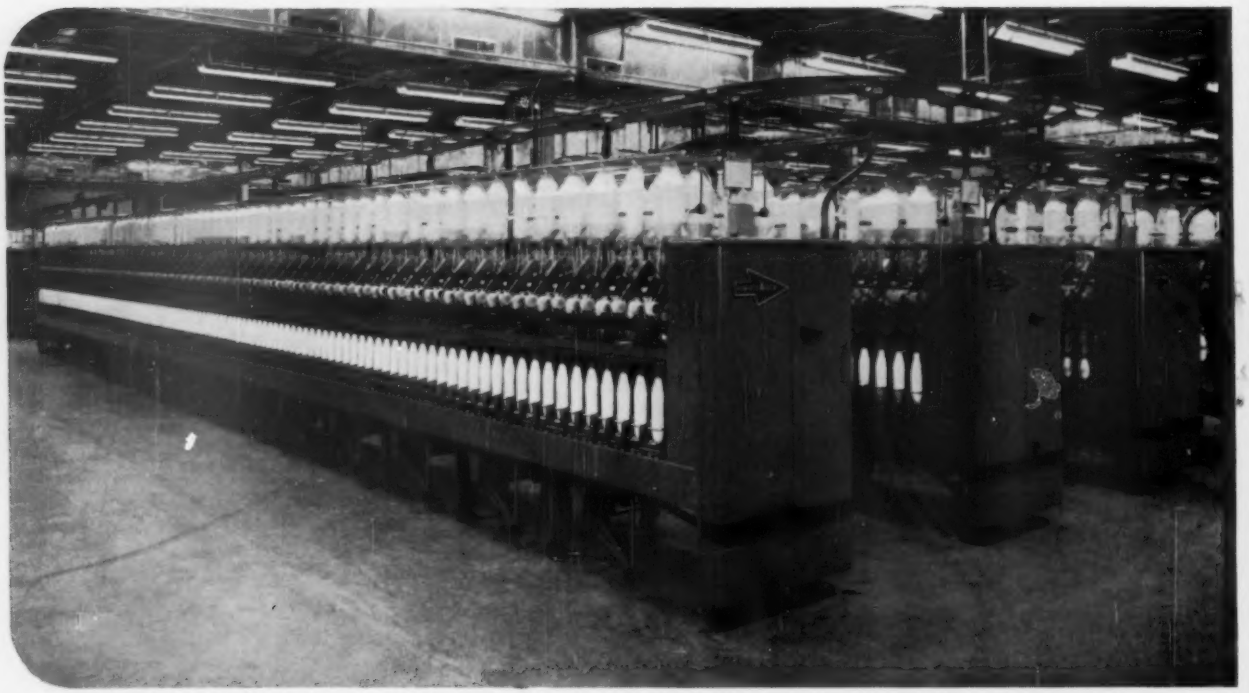
HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N.C. • SPARTANBURG, S.C.



ARROW Model M-1 (above) for cotton system, Model WM-1 for worsted system. 25 inches wide.

ROBERTS ARROW SPINNING for both cotton system and long fiber system yarn spinning for natural and synthetic fibers and blends. High speed, all ball bearing, big package Arrow Spinning Frames in 25-inch or 36-inch width. Exceptional flexibility and simplicity of operation in the manufacture of improved quality yarns at reduced costs and modest initial investment.

ARROW Model WM-2 (below) for worsted system, Model M-2 for cotton system. 36 inches wide.

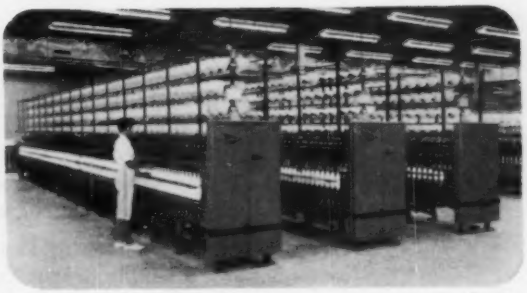


ROBERTS

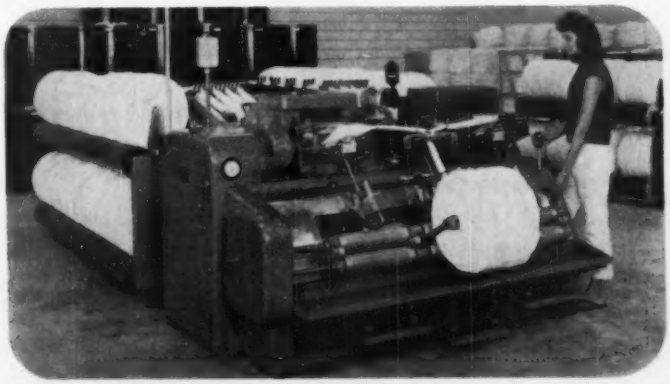
Yarn Making Machinery

FOR COTTON, WORSTED, OR LONG FIBER SYSTEMS

ROBERTS ROVING FRAMES are ball bearing rebuilt and feature all-new heavy duty ball bearing Roberts Double Apron Drafting Systems for cotton, short staple or long fiber synthetics, worsted and blends. 10x5 and 12x7 packages. Provisions for double headed spools.



ROBERTS TWISTERS for plying yarns are completely ball bearing equipped and designed for high speed ring twisting operations. 25- or 36-inch frames. Up to 4-inch rings and 12-inch bobbins. Package weights 1¼ pounds on cotton, ¾ to 1 pound on worsted.



ROBERTS-TEMATEX worsted system preparatory machines, including ParaBlenders, ParaDrafters and AutoEveners, are rugged, high performance machines for pinning, parallelizing, drafting and blending worsted and synthetic fibers prior to roving and spinning, and in top making plants. AutoEvener automatically and instantaneously corrects delivered sliver weight to within plus or minus 1%.

Simplicity of design, rugged construction and high speed ball bearing operation are the hallmarks of all Roberts Company machinery. Roberts also supplies rebuilt spinning frames and modernization changeovers for mills' existing machinery.

ROBERTS COMPANY

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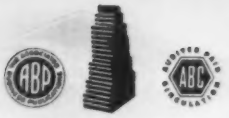

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Coming Next Month:

Data Processing Today: A Special Report . . . and a New Department: Manpower Management

SPEED, QUANTITY, ACCURACY. That, in three words, is what textile companies are seeking today as they turn to electronic and mechanized data processing to handle the rising number of vital figures, forecasts, and statistics that are the lifeblood of any successful enterprise. You'll see how six modern textile companies are moving ahead in data processing, what their problems are, and what kind of a payoff they anticipate from better data processing. Watch for it in next month's TEXTILE WORLD.

MANPOWER—is what you manage. That's why "Manpower Management," written by Paul A. King, labor-relations counsel, will prove unusually useful to you in your day-to-day tasks. Sample of things to come: News about court awards in labor disputes; tips on industrial relations and personnel management; news about arbitration awards that might affect you; information on a whole array of interesting (and useful) developments in the most sensitive part of your job—managing people.

On Our Cover: The men and women perform these research tasks (from left to right, top to bottom): identifying fibers; wear testing; measuring yarn evenness; checking zippers; measuring abrasion resistance. Photos, courtesy of United States Testing Co., Inc., Hoboken, N. J.

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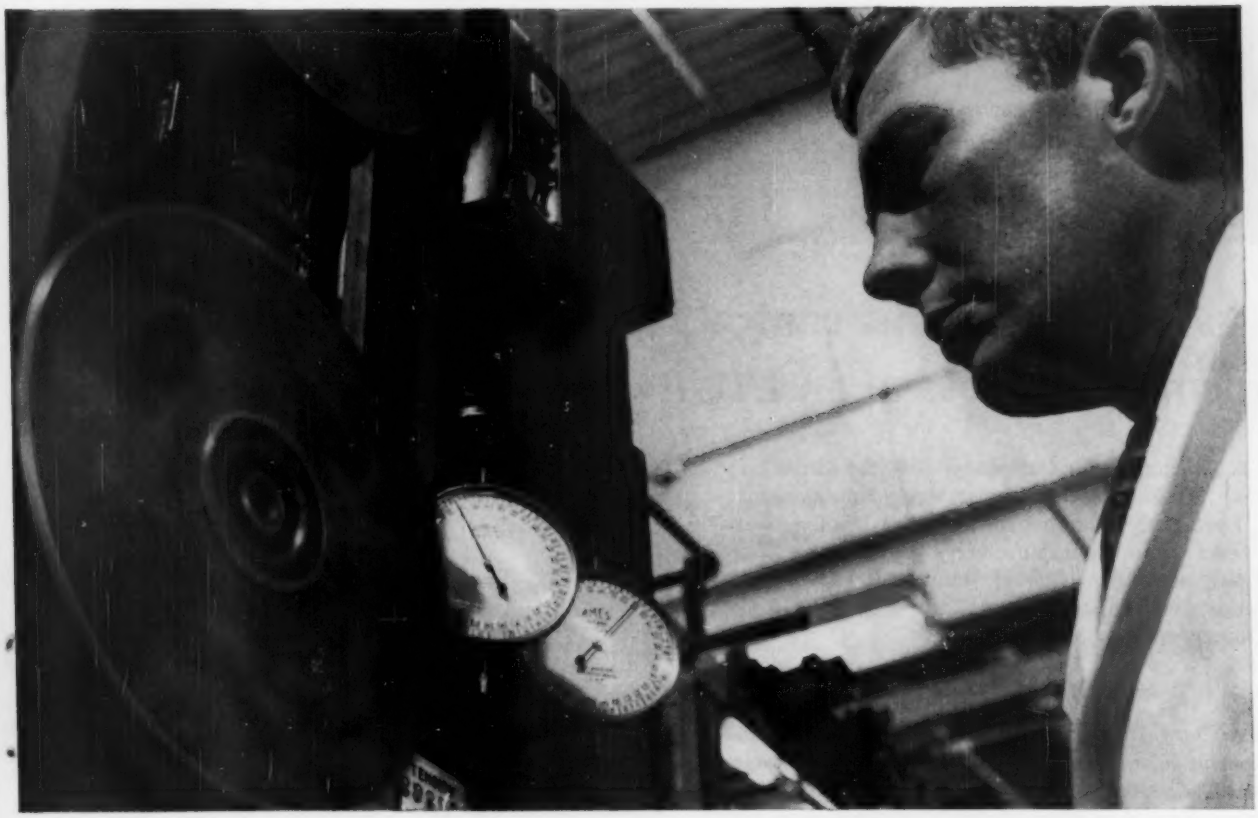
Lots of good things come from GOODYEAR

GREEN SEAL ARE CODED TO 1/32"...

perfectly for longer, more trouble-free service



LENGTH-CODING GREEN SEAL V-BELTS TO 1/32"—NOT JUST 1/10", LIKE MOST BELTS—takes this ultra-precision machine. Only Goodyear has this type equipment, which is set by means of fine tolerance steel templates to insure accuracy. Machine readings are in the actual code numbers used to eliminate errors.

Green Seal—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

YEAR INDUSTRIAL PRODUCTS

At new Foster plant of Alice Manufacturing Co., Easley, S. C., Amco systems give just the right temperature, humidity and room cleanliness.

Amco systems control temperature, humidity, room cleanliness at ALICE Manufacturing Company

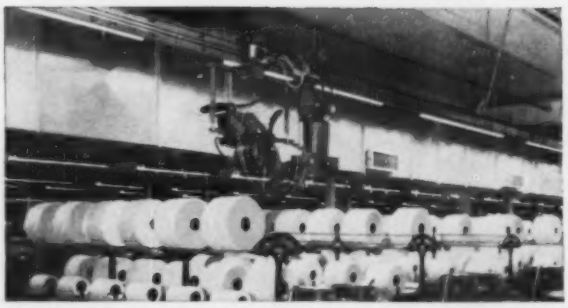
Alice Manufacturing Company is noted for its fine print cloth. One big reason for its success: rigid quality control.

Exact temperature, humidity and room cleanliness control is a must in this manufacturer's quality control set-up. That's why Amco Central Station Air Conditioning, Amco Ceiling Cleaners and Amco Heliclone® Loom Cleaners are on the job!

AMCO AIDS OUTPUT, CUTS WASTE

Here's how Amco-controlled temperature, humidity and room cleanliness help improve quality and boost production. They keep materials in top condition during each processing step to assure stronger, smoother, more uniform fabric. They permit closer machine adjustments, higher machine speeds. They reduce broken fibers, dust, fly . . . greatly decrease the need for cleaning . . . eliminate troublesome static electricity.

You can always rely on Amco to give you dependable advice and expert installation best suited to your needs. Why not learn how Amco can help *your* mill? Contact your nearest Amco representative today.



Combing department at Alice Manufacturing Co. relies on Amco Central Station Air Conditioning and Amco Ceiling Cleaner. Consulting engineers: Campbell and Leppard.

AMCO

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How 43 Textile Mills Reduced Baling Costs 20%-35% with AVISTRAP® CORD STRAPPING

Replaces Metal. AVISTRAP in ½", ⅝", ¾" widths replaces identical width metal strapping on grey goods bales weighing up to 800 lbs. Coil mounting and handling method devised by Selta Corp., AVISTRAP distributor in Charlotte, N. C., eliminates costly and time-consuming precutting needed with metal strapping. Baling press operator simply preloads strap around bale, ties ends, and releases pressure. Baling with AVISTRAP is faster, or equal to speed of metal strapping.

Fully Proved. More than 50,000 AVISTRAP-strapped bales have now been shipped by the 43 mills using this method. In addition to overall savings of from 20% to 35% in shipping room costs, users report AVISTRAP eliminates rust damage, is favored over metal by customers for safety, and convenience of easy removal from bale, easy disposal by normal waste handling methods or by burning.

AVISTRAP®
CORD STRAPPING*

How do your packaging needs size up with these four advantages? **Toughness**—AVISTRAP will absorb impacts that snap metal strapping. **Safety**—AVISTRAP has no sharp edges, won't lash out with jagged ends. **Lightness**—21-lb. coil of AVISTRAP carries yardage equal to 100 lb. of comparable width metal strap. **Convenience**—Dispensing equipment costs little, is easy to use. Tensioning and sealing require little skill or training. A range of AVISTRAP sizes, all tools and accessories, and tool service are available through local distributors in all major industrial areas. Contact the district office nearest you (listed below) to arrange for a demonstration in your plant. To request application information, write directly to Industrial Packaging Department, American Viscose Corporation, describing your strapping problem.

*Patents pending.

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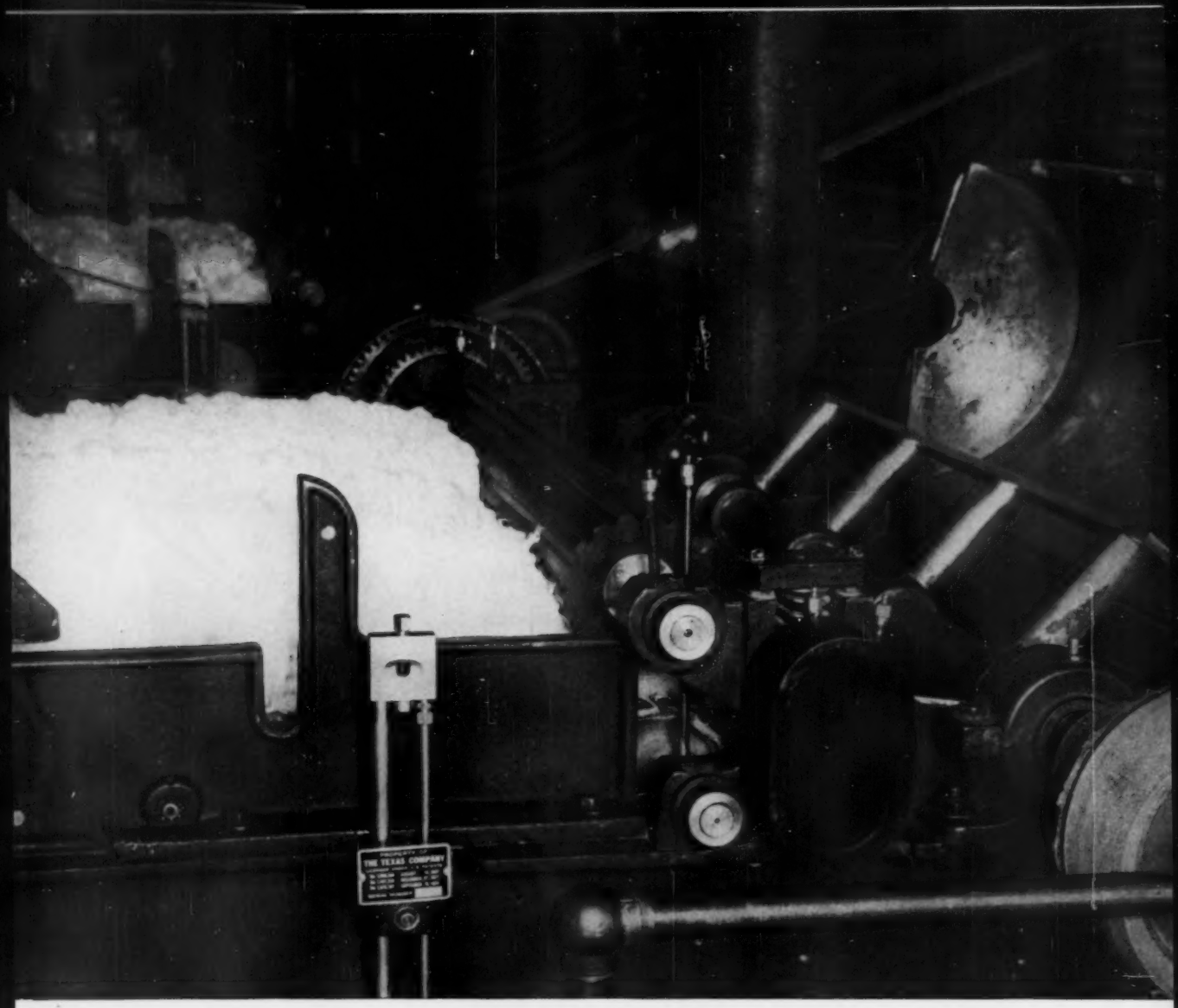

IF YOU WANT TO BE CONVINCED ABOUT THE EFFECTIVENESS OF COTTON CONDITIONING COMPOUNDS...

Here are the proven benefits of Texspray

Yarn is smoother. Texaco Texspray Compound increases fiber flexibility by replacing natural oils; so fibers draft more easily and uniformly, with fewer ends down.

Staple is longer. Texspray conditioning produces a larger percentage of long fibers . . . preserves them against breakage in later manufacture.

Static electricity is sharply reduced. And, in addition, Texspray practically eliminates fly and dust—often by more than 75%!

Finishing is unaffected. Texspray is completely removed in the preparatory wash. Grey goods can be dyed or printed without altering color values.

Let a Texaco Lubrication Engineer show you where Texspray fits best into your operation. He will be glad to analyze your requirements, make complete recommendations. Just call the nearest of the more than 2300 Texaco Distributing Plants, or write Texaco Inc., 135 East 42nd Street, New York 17, New York.

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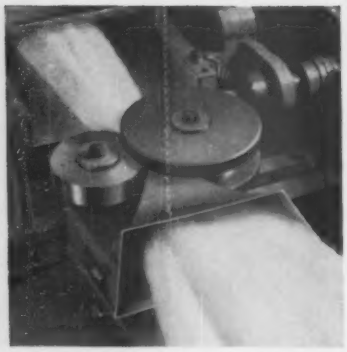
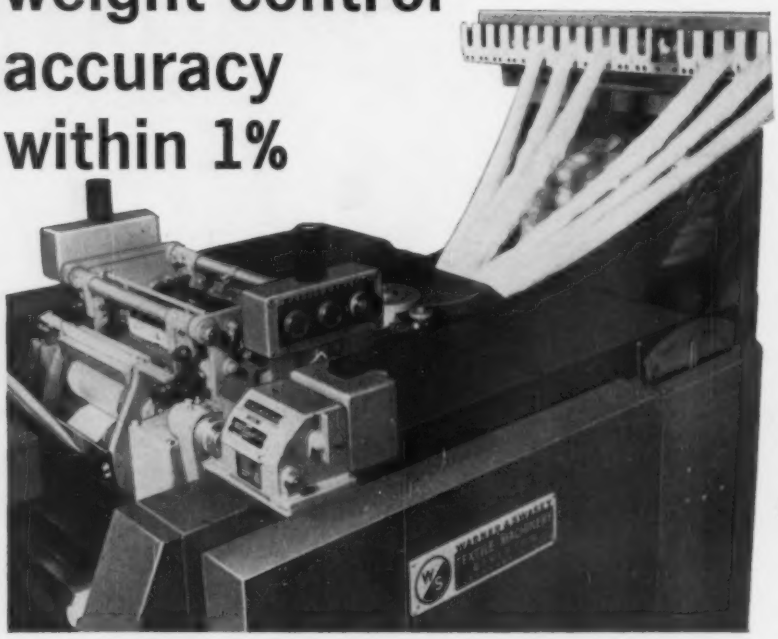


Measuring rolls, *acting as a "sensing device", detect minute variations in weight of entering stock. These variations are automatically transmitted to a rotating memory wheel.*

Memory Wheel *introduces a time delay in machine response, allowing entering stock to travel from measuring rolls to draft rolls, and indicates changes in faller bars speeds.*



This new single head, single delivery Servo Drafter Intersecting Draw Frame has proven that it will produce higher quality yarns by maintaining consistent yard-for-yard sliver weight.

Extensive tests in various leading mills indicate that you can expect weight control accuracy within 1%. In a single draft, the machine can correct infeed weight variations of ± 25% in wools, synthetics or blends. Calibration of the servo control during stock change-over is simple and can be done while the machine is running.

The new machine, which operates at a mean speed of 1500 D.P.M. retains all of the time-tested features of the Warner & Swasey Pin Drafter®, utilizes a combination hydraulic and mechanical system for simple maintenance and long-term operating dependability. It takes the same floor space as previous models.

For complete facts on how this machine will fit into your blending, precombing, top making and drawing room operations, get in touch with our nearest sales office.

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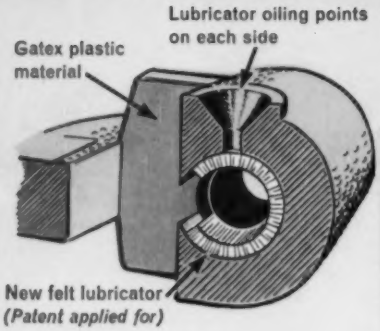
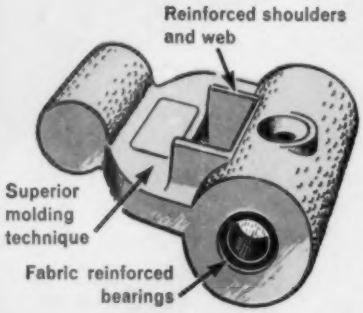
Another product in Gates complete line of Textile Accessories



Exclusive new Gates features!



Latest advance
in plastic drop box pickers!

Less wear on picker bearings and spindle —New felt lubricator (patent applied for) stores oil and dispenses it at an even rate on the spindle rod . . . provides long-lasting lubrication . . . cuts lubricating time. New fabric-reinforced bearings reduce friction and heat and extend the service life of the Gates picker, reducing down-time and replacement costs.

Longer life for picker and stick — All stress points on the shoulders and web of the Gates picker have been reinforced and strengthened for the entire picker stick stroke. As a result there is a minimum of web and shoulder splitting and the picker lasts longer. The wider shoulder design also results in considerably longer picker stick life.

Greater picker impact strength — Gates reversible drop box pickers are made of new Gatex plastic—a dense material highly resistant to impact. They are formed through special molding techniques that eliminate internal stresses, increasing picker life.

These exclusive new Gates features, together, give you longer picker life, and reduced spindle rod and picker stick wear. For complete information, call your nearby Gates Distributor.

The Gates Rubber Company, Denver, Colorado
Gates Rubber of Canada Ltd., Brantford, Ontario

Take-up Roll Coverings
Card Bands
Cone and Evener Belts
Spinning Frame Drives

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Gates
The Mark of Specialized Research

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Tex-Hide and Vulco Loop Pickers

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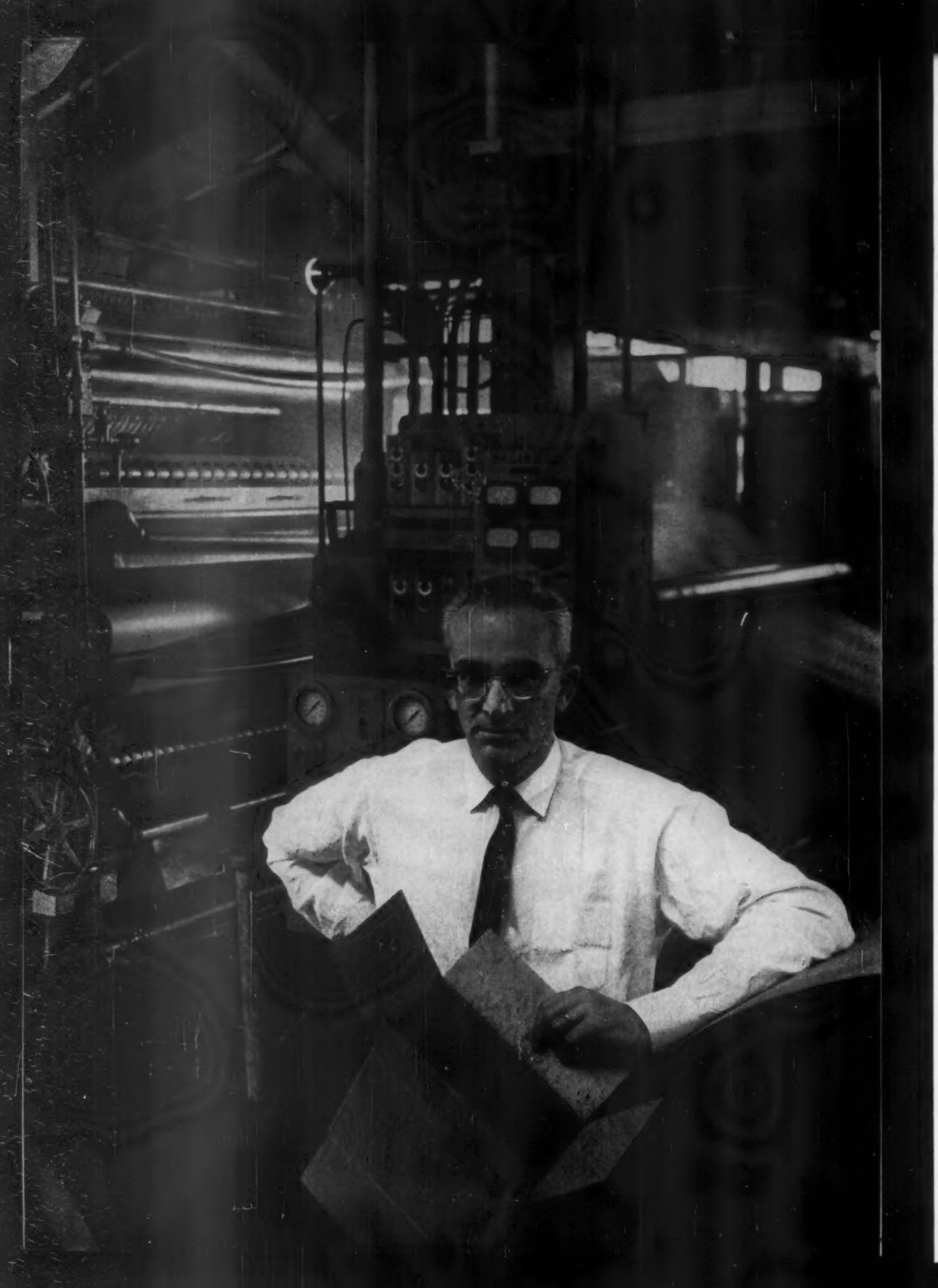
4-in-1 Check Straps
Multi-Check Straps

TPA 9



With him, every case is special

Over a thousand companies have put the construction of their corrugated boxes in Metin Hamarat's hands.

METIN HAMARAT is manager of all Union-Camp corrugated box plants. The shipping containers these plants produce are used by virtually *every* manufacturing industry in the country.

There's a good reason for this wide acceptance. Metin, you see, is a perfectionist. Although making corrugated boxes is a mass production business, he refuses to compromise with quality.

Why this passion for precision when most corrugated boxes look alike? The answer lies in the myriad of unapparent features that contribute to the performance or quality in a corrugated box.

For instance, consider the combining of the sheet itself—the corrugated "sandwich". Even the *quantity* of adhesive used in this operation is critical. Skimp, even slightly, and the sheet might peel apart later. Use too much adhesive and you often get an unsightly washboard effect that can spoil the appearance of your printing. And, as you might expect, Metin and his pressmen take particular pride in corrugated box printing. So much so, that they frequently *sign* their work!

Scoring is critical, too. Just being *straight* isn't enough. Too deep a score, as Metin points out, weakens the board and makes it prone to tear. Too narrow, or shallow, will make the box hard to fold—cause foul-ups on the packaging production line. And, of course, costly downtime.

And, there's *slotting*—the knife-cuts that form the top and bottom box flaps. Metin is meticulous here, as well. If you've ever tried to close and seal a carton whose flaps didn't meet perfectly or exactly parallel to each other, you'll understand why.

Attention to these and other key steps in the manufacture of Union-Camp corrugated boxes are the reasons they pay off in performance on your packaging line. That's why with Metin Hamarat, every case is special.

His craftsmanship manifests itself in the quality of products produced in *all* Union-Camp box plants. It typifies the thoroughness of Union-Camp's packaging service. This service covers corrugated box development and design. It includes specifications control, art and merchandising counsel and plant surveys of your materials handling operation.

We'll be glad to tell you more about this comprehensive corrugated service and what it could mean to you in packaging efficiency. A note on your letterhead will bring a prompt reply. Why not write us today?

UNION-CAMP®
CORRUGATED BOXES
Union Bag-Camp Paper Corporation 233 Broadway N.Y. 7, N.Y.

Plants: Savannah, Georgia • Trenton, New Jersey • Chicago, Illinois • Lakeland, Florida • Spartanburg, South Carolina • Jamestown, North Carolina
Subsidiaries: Allied Container Corporation, Dedham, Massachusetts
The Eastern Box Company, Baltimore, Maryland.

put these problems in our hands
When you factor with Heller you get rid of bad debt losses . . . ledgering and collecting accounts receivable . . . credit investigations and their cost

New clients tell us that their first experience with Heller factoring is a sense of relief—relief from the expense and supervision of clerical work.

Next, they are pleased at Heller's quickness in putting cash into their hands for every sale, regardless of the terms of sale—cash for timely buying, for leveling production, for extending credit, for getting into better competitive position.

BUT THAT IS NOT ALL. Even greater benefits are realized later, when the client finds himself with more time and energy for advancing his business, for research and development, for selling more, and making more profit . . . Business is bound to go better when you're feeling secure, on top, and moving ahead!

Yes, you have a very real helping hand when Heller designs a factoring plan for you, and follows through with typical, personal, close attention — "like a department of our own company," as one client put it. Know about Heller's kind of factoring! Write for our informative booklet, **"Factoring For Profit."** **Dept TW-2.**

Over one billion dollars annually for industry

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As featured in Harper's Bazaar, all-wool sports dress in Stadium Yellow by MR. MORT

Best base for bright yellows

...exclusive new NATIONAL FAST WOOL YELLOW GL

Produced domestically only by National Aniline, this outstanding lemon-yellow acid dye offers exceptionally good money-value in currently popular bright shades such as illustrated.

National Fast Wool Yellow GL is level-dyeing with good light and wet fastness and excellent working properties. It is highly recommended for wool as well as for wool and nylon 6 or nylon 6, 6 mixtures and for cross-dyed wool-dacron blends.

We suggest you try it for dyeing suitings, dress goods, carpet yarns and wool or fur-felt hats. Samples on request.

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Model 102 installation at Kimberly Yarn Mills

The First New Yarn Mill in a Decade Selects

FOSTER MODEL 102 WINDERS

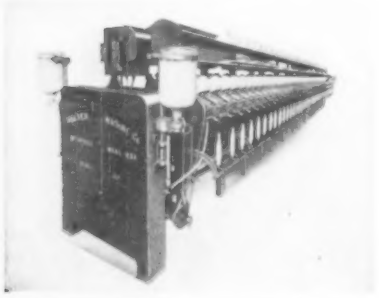
Kimberly Yarn Mills of Belmont, N. C. opened its doors for business early in 1960. It did so because it believes there is still room in the market for another *quality* spinner.

There is little point, of course, in spinning a quality product unless the product is properly wound and properly packaged. That is why Kimberly selected Foster Model 102 Cone and Tube Winders.

They know that the Foster Model 102, with its self threading tension and slub catching attachments, assures clean, automatically inspected yarn; that its waxing and yarn conditioning attachments provide any degree of softening and lubrication desired; that its ribbon breaker prevents ribbon wind; and that repair costs run as low as $10.00 per year per 100 spindles.

They also know that the Foster Model 102 Cone, with its convex base and its 13° "greater taper", when full, assures free delivery at the knitting machine, preventing "nip-i-tis".

Time marches on and so does the Foster Model 102. Send for descriptive circular. No obligations.



Foster Model 102 with yarn conditioning attachment.

FOSTER MACHINE COMPANY

466-0

A YARN WINDER FOR EVERY PURPOSE

Westfield, Massachusetts, U.S.A.

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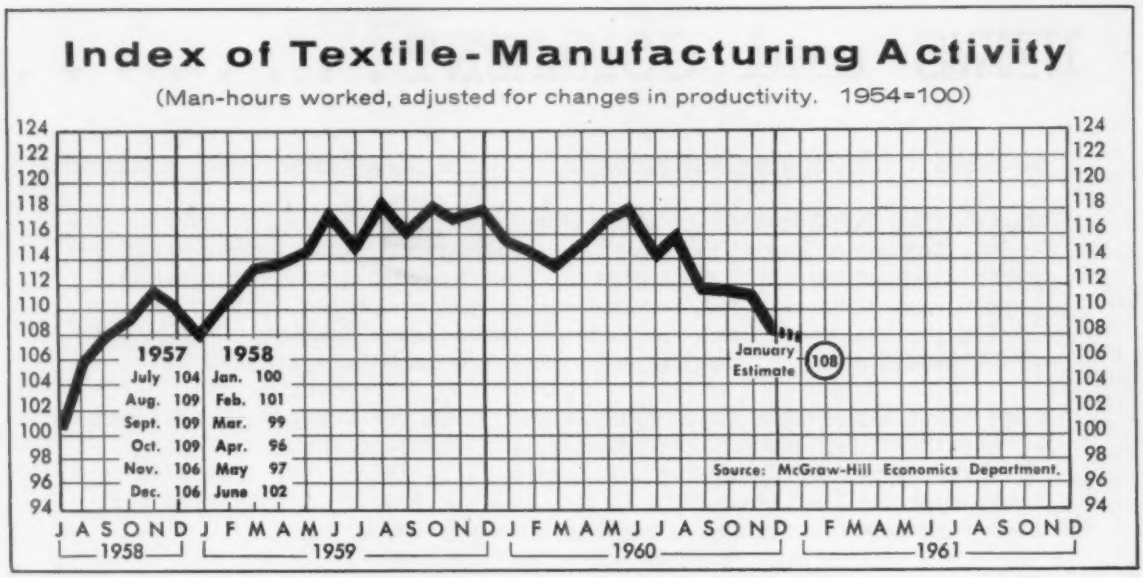
CANADIAN REPRESENTATIVE — Ross Whitehead & Co., Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont. • EUROPEAN REPRESENTATIVE — Muschamp Textile Machinery (Sales) Limited, Eider Works, Wellington Road, Ashton-under-Lyne, Lancashire, England



Now: An Export Rise

Textile World's monthly statistical indicators (right) show that the industry's momentum ran at a high level in December, although somewhat below the same period a year earlier. The index of textile-manufacturing activity held at 108 in December, versus 116 a year earlier. Other indicators, such as the Federal Reserve Board index of textile mill production, paint a similar picture of mild slowdown.

●

On the international scene the textile industry appears to be heading for calmer seas. Exports of textile products are rising gently and persistently after some hesitancy in late summer, and the latest statistics available indicate a slowdown of textile imports. The present reduction in the flow of foreign fabrics entering this country and the increase in our sales abroad are heartening and may well continue in the months ahead. Business activity overseas is still running at a very high level. This should help exports substantially throughout the early months of 1961.

The latest available information on manufacturers' sales and inventories shows that textile producers are keeping inventories well under control. Industry sales of $1.2-billion and inventories of $2.7-billion balance at an inventory-to-sales ratio of 2.3. That inventory ratio is only slightly higher than a year ago at the same time, representing better performance than many other industries.

Figures of the Month

TEXTILE-INDUSTRY INDICATORS

	Latest Month	Previous Month	Year Ago
Textile World's Exclusive Index (chart above)	108	112	116
Employment (thousands)[1]	915.7	924.9	959.9
Production Workers (thousands)[1]	822.1	831.5	867.0
Weekly Earnings[1]	61.88	63.18	65.03
Hourly Earnings[1]	1.62	1.62	1.59
Weekly Hours Worked[1]	38.2	39.0	40.9
Production Index (1957=100)[2]	102	104	111
Wholesale Price Index (1947-49=100)[3]	95.2	95.4	96.7
Manufacturers' Sales (million $)[2]	1150*	1150	1209
Manufacturers' Inventories (million $)[2]	2660*	2640	2542
Inventories-to-Sales Ratio	2.3*	2.3	2.1
Exports (million $)[3]	157.1*	122.3	138.9
Imports (million $)[3]	88.6*	92.4	92.1
Stock Price Index (1941-43=10)[4]	24.86	24.97	32.06
Failures (number)[5]	11	8	8

NATIONAL ECONOMIC INDICATORS

Industrial Production (1947-49=100)[2]	156	159	165
Consumer Price Index (1947-49=100)[3]	127.5	127.4	125.5
Wholesale Price Index (1947-49=100)[3]	119.5	119.6	118.9
Population (millions)[6]	182.0	181.7	176.5
Unemployment (millions)[6]	4.5	4.0	3.6
Employment (millions)[6]	66.0	67.2	65.7
Personal Income (billion $)[6]†	406.7	409.5	393.9

* November; otherwise latest month is December.

1. Bureau of Labor Statistics; 2. Federal Reserve Board; 3. Department of Commerce; 4. Standard & Poors; 5. Dun & Bradstreet; 6. Bureau of the Census; † Annual rate.

NEWS and COMMENT. . . . . .

A NEW ADMINISTRATION WITH NEW FACES AND NEW IDEAS HAS TAKEN OVER IN WASHINGTON.

Just before President Kennedy's inauguration and at his insistence, the Senate Commerce Committee issued the summary of an incomplete staff report on industries hurt by imports. The report did not suggest any import restrictions. But for industries and companies hurt by imports it did propose government "adjustment assistance," such as helping improve productivity or helping move into new lines of production.

Some textile men drew hopeful inferences from pre-inauguration comments of President Kennedy and his new Secretary of Commerce Luther Hodges, former governor of North Carolina and textile executive. But more realistic appraisal of statements by the two men gave no clear basis for expecting any substantial change in over-all trade policy.

Meanwhile, there was speculation on the fate of the Eisenhower administration's final budget. It was in balance. But the betting was widespread that the Kennedy program would swing it well over to the deficit side. The Eisenhower budget asked Congress to allow business men to depreciate plant and equipment more rapidly to spur new investment.

"MIXED" IS THE WORD FOR EARNINGS REPORTS FROM TEXTILE MANUFACTURERS.

Reeves Bros.--For six months ended Dec. 31, sales of $28,792,366 and earnings of $270,409 vs. $32,878,123 and $1,227,643 in same period, 1959.

Lowell Bleachery--For the year ended Sept. 30, gross revenues of $726,826 and earnings of $13,569 vs. $833,206 and $38,709 a year earlier.

Collins & Aikman, Inc.--For the nine months ended Nov. 26, sales of $50,383,143 and profit of $876,004 vs. $36,369,543 and $944,549 a year ago.

Erwin Mills, Inc.--For the year ended Sept. 30, sales of $63,911,599 and earnings of $2,093,613 vs. $70,770,123 and $1,622,058 a year earlier.

Springs Cotton Mills--Prediction by President H. M. Close that his company's 1960 earnings will at least equal 1959 earnings.

Beaunit Mills--Prediction by Chairman and President I. Rogosin that earnings for the six months ending March 31, 1961, will at least equal earnings of $1,934,484 in the six months ended Sept. 30, 1960.

Burlington Industries, Inc.--Report by Chairman and President J. Spencer Love that production currently is running about 10% below last year. Order backlog is somewhat below normal for winter but production is being held in line with orders.

Avondale Mills--For the 16 weeks ended Dec. 18, net profits of $596,022 vs. $539,972 a year earlier.

MEANWHILE, MILLS MOVED AHEAD WITH CAPITAL IMPROVEMENTS AND MODERNIZATION.

Erwin Mills, Inc.--In the year ended Sept. 30, spent $2,761,000 for improvements and expansion of manufacturing facilities, mostly at Cooleemee, N. C. In 1961, plans modernization and expansion at Durham.

Springs Cotton Mills--More than $5,000,000 spent for capital improvements. Plans for more expansion and improvement of working conditions.

The Department of Commerce predicted that final figures for 1960 would show capital expenditures for textile machinery some 18% higher than the $400,000,000 in 1959. Backlogs indicate a high rate of operations in the first half of 1961.

TEXTILES AND THE TEXTILE INDUSTRY CONTINUE TO MAKE NEWS AROUND THE WORLD.

Finland--TEXTILE WORLD's Lance Keyworth says Finnish textile companies now are coordinating their production lines and their plans for export, hoping to cash in on fabric design, which is their strong point.

Austria--TW's Jim Morrison reports a rising tide of "illegal" textile imports from Eastern Europe, mostly via Italy. Prices range from 30 to 40% below prices of goods from other countries.

Japan--TW's Sol Sanders says Japan exported $47,200,000 of textile machinery in 1960--an all-time high. This includes $35,200,000 worth to Southeast Asia and the Near East in the first nine months. Early this year Japan will export $7,000,000 of textile machinery to Russia.

Israel--TW's Sig Goldstein reports the government will issue no more licenses for new spinning mills. When present commitments are fulfilled the textile industry will have about 336,000 spindles.

France--TW's Helen Avati, analyzing the year-end report of the Textile Committee of the Organization for European Economic Cooperation, predicts that European textile output in the first half of 1961 will be at the same high level as in 1960.

Japan--TW's John Yamaguchi reports that six Japanese rayon filament yarn manufacturers have turned down a Chinese Communist offer to buy 200 tons of yarn at 10% below the world market price.

Holland--TW's Paul Catz reports that Ansonia Mills, Inc. (East Taunton, Mass.) and J. Elias Textile Works (Eindhoven, The Netherlands) will join 50-50 in manufacturing wide elastic cloth for Western Europe.

England--Seventy-five cotton-textile manufacturers in Lancashire upped their profits $14,000,000 in 1960 as a result of a government-industry program that scrapped obsolete mill machinery and equipment.

WASHINGTON OUTLOOK.....

Secretary of Commerce Luther Hodges promises that textile troubles will get an early study by the Kennedy administration. This hope was about the only specific pledge given by Hodges, the former North Carolina governor, when he breezed through hearings on his nomination.

Textile-state lawmakers - Senators John Pastore (D., R.I.), Norris Cotton (R., N. H.), Strom Thurmond (D., S.C.) and others - are giving solid backing to Hodges. They think the new Secretary's experience with the textile industry in North Carolina will give him a good insight into the national problems.

A new inter-agency Washington Committee will be charged with looking at textiles. Democrats, even some Republicans, think the textile industry will get a better break. Senator Cotton, a GOP stalwart, confesses that a similar inter-agency committee named by Eisenhower was a bust, that nothing was accomplished. Commerce Secretary Hodges probably will be strongest voice on the new committee.

*

Any preferential treatment for domestic textiles will go against the grain of the Kennedy trade policy. The general tone of the new Administration is for liberalized, freer trade.

Kennedy's policies have not been pinpointed, but most of the advice he has been getting is based on two major principles: Few restrictions on imports - and then only if all other solutions fail - and a vigorous drive to promote U. S. exports.

This is the sense of a report on foreign trade policies given Kennedy by Senator Warren Magnuson (D., Wash.), Chairman of the Senate Interstate and Foreign Commerce Committee.

Kennedy is considering a program of "adjustment assistance" for industries hurt by imports. This is another of the recommendations made by Magnuson's staff. The details have not been spelled out, but such a program might include Federal funds for re-training of workers, help in moving factories to new sites, and putting them into new businesses.

*

A similar program - but not confined to import-damaged industries - is a vital part of the new Administration's depressed area plan.

Senator Paul Douglas (D., Ill.), who at President Kennedy's request headed a task force study on depressed areas, introduced most of his recommendations as proposed legislation. Kennedy endorsed the Douglas report and will work for passage of depressed area legislation in Congress.

Under the proposal, areas affected adversely by trade agreements would be given top priority for redevelopment. Much of the program would be dedicated to bringing new industry into a depressed area. Existing industries would be helped to expand, but the bulk of the Douglas program - as presently drawn - would favor the establishment of new industries. Douglas proposes, for example, that government loans for private projects be limited to the "creation of new enterprises rather than ...the relocation of established firms."

Some type of quick action on depressed areas is likely. This is one of Kennedy's top five proposals.

HIGH QUALITY

Attained through:
- Minimum of defects
- Perfect mixture of materials
- Uniform weaving action

Resulting in:
- Less supervision
- Easy personnel training
- Reduction in down time
- Practically no replacement parts
- High productivity
- Making it possible to operate at —

MINIMUM COST

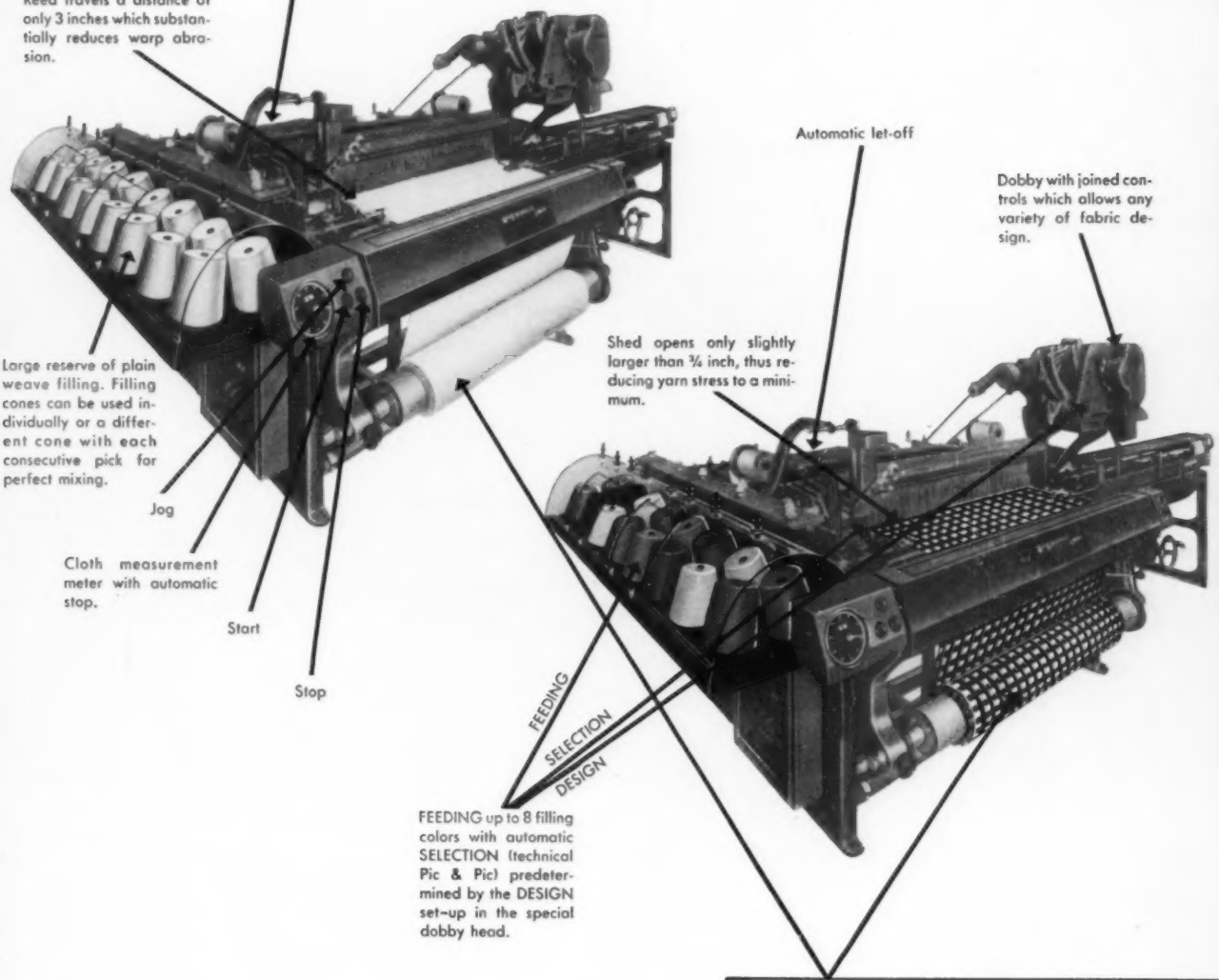
Fabrics can be woven:
- Using 8 filling colors or materials
- In any design
- From any material

This combination will permit a

GREATER PARTICIPATION IN THE MARKET

and the Universal Iwer loom provides the three essential elements:

HIGH QUALITY + LOW COST + FLEXIBILITY


Constant warp tension
Reed travels a distance of only 3 inches which substantially reduces warp abrasion.
Automatic let-off
Dobby with joined controls which allows any variety of fabric design.
Shed opens only slightly larger than ¾ inch, thus reducing yarn stress to a minimum.
Large reserve of plain weave filling. Filling cones can be used individually or a different cone with each consecutive pick for perfect mixing.
Jog
Cloth measurement meter with automatic stop.
Start
Stop
FEEDING
SELECTION
DESIGN
FEEDING up to 8 filling colors with automatic SELECTION (technical Pic & Pic) predetermined by the DESIGN set-up in the special dobby head.

Plain Weave or a Pattern can be woven on the SAME LOOM at an incomparably low cost!

SHUTTLELESS LOOM

universal IWER

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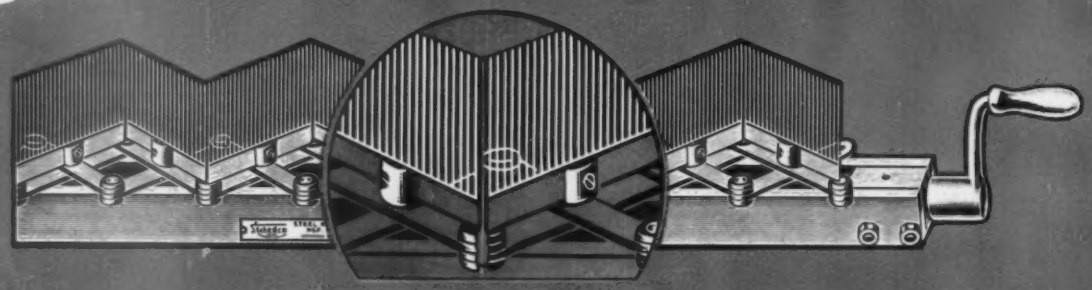
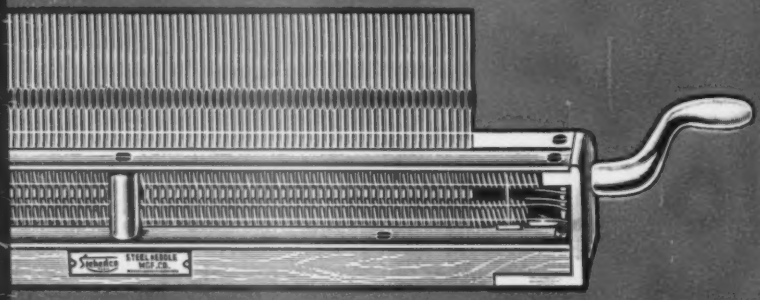
Look to Stehedco

...for these WARPER ACCESSORIES

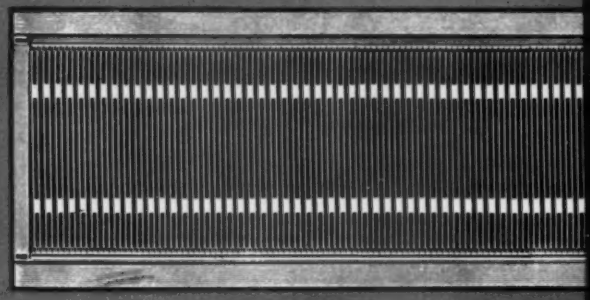


POSITIVE EXPANSION COMBS–
Stehedco construction, best by far, features the locating lug thus insuring faster more accurate positioning at the joints.

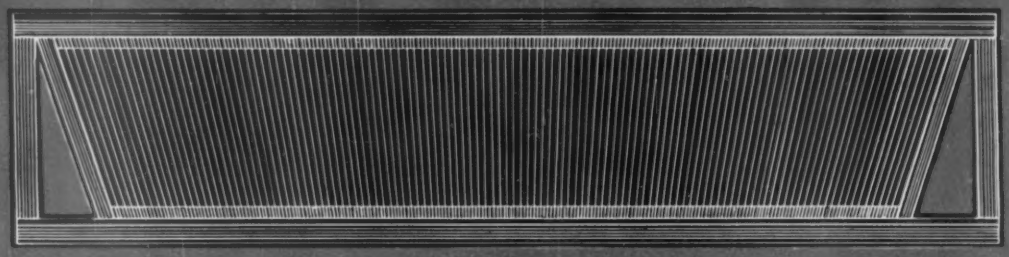
All Stehedco Warper Combs and Reeds are Hard Chrome Plated to give maximum wear resistance



SPRING EXPANSION COMBS — Whatever type you prefer, Stehedco has it! — Screw or Tape type; plain dents, eye dents for leasing or staggered dents. Screw type with eye dents is illustrated.



CROSSING REEDS — Single crossing reed (illustrated) for a single end lease. The Stehedco four way crossing reed is also very popular for obtaining a four sheet and single end lease.



FAN REEDS — Advanced construction methods insure the most uniform spacings possible. A good point to remember is that a fan reed increases in cost and decreases in spacing uniformity as the fan is increased. For best results keep the fan to a minimum.

Sales prints covering any of these items are available upon request. Ordering is simple . . . just fill in the specification blocks on the print.

If you need help, Stehedco field or plant experts are always available. Ask for the new Stehedco catalog on Warp and Yarn Preparation items.

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WORLD FAMOUS TRADE MARKS OF THE
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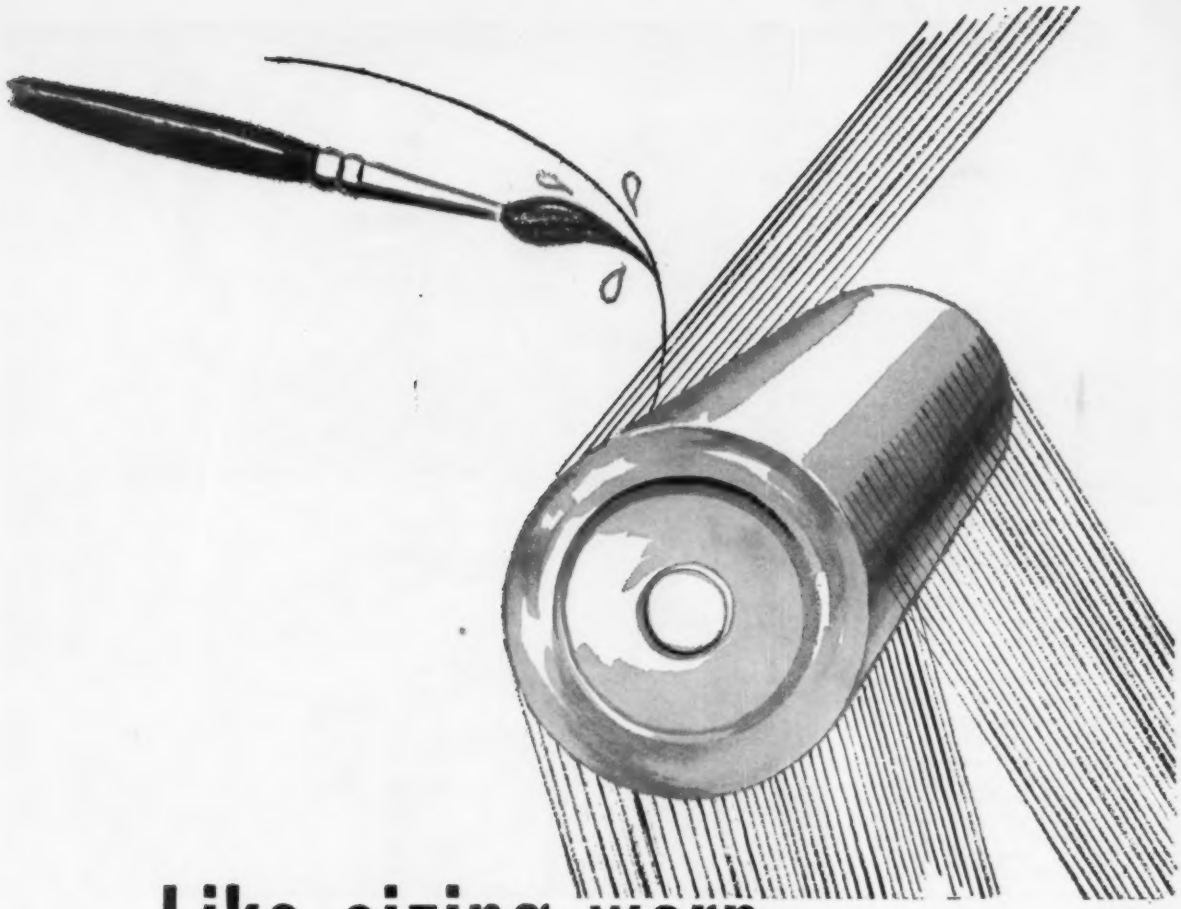
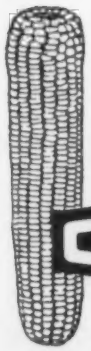


Like sizing warp "end by end"

Weaving at high efficiency goes back to the depth and uniformity of warp sizing. CLINTON starches reach warp ends *completely*, to give yarn increased strength and a friction-free surface. At the slasher and loom, shedding is minimized. In the finishing operation, CLINTON starches give the proper hand and body to your fabrics. To assure consistent quality from warp sizing to finishing, you can always count on dependable CLINTON starches . . . the standard of comparison in leading textile mills.



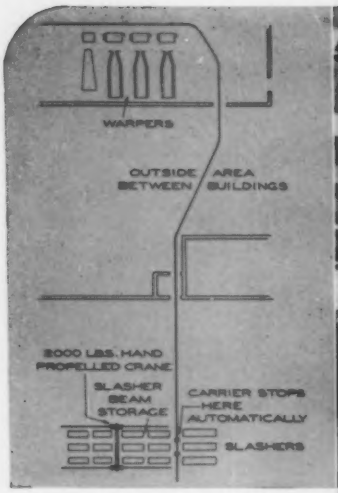
CLINTON CORN PROCESSING COMPANY

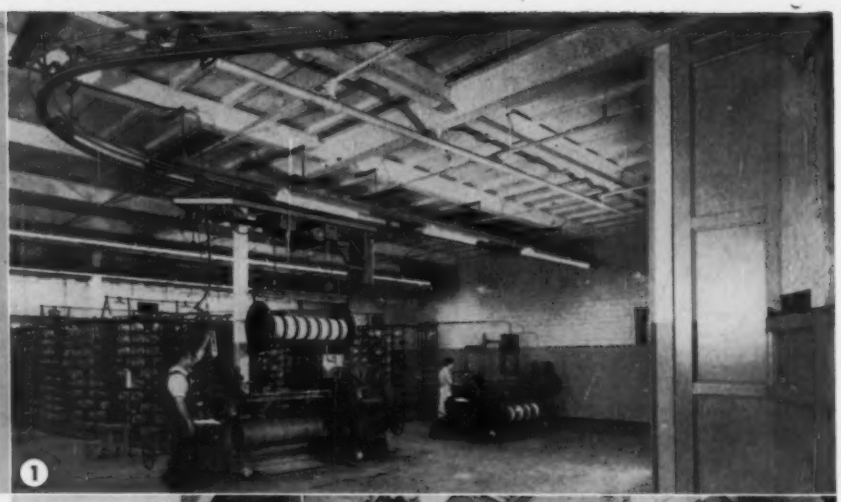
CLINTON

CLINTON, IOWA

←CIRCLE 24 ON READER SERVICE CARD

CIRCLE 25 ON READER SERVICE CARD

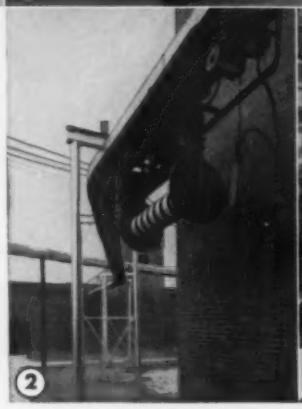


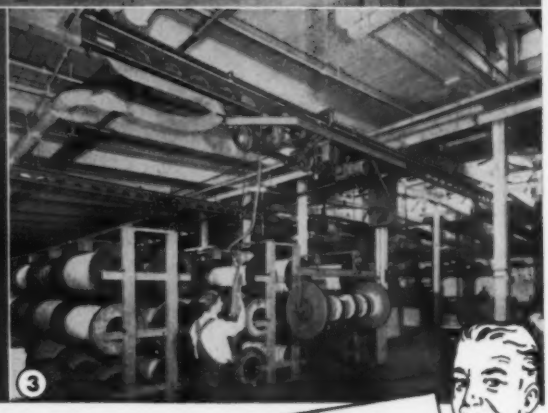


1 Beams are picked off these high speed warpers and dispatched on the overhead track directly to slashers automatically without anyone accompanying. Four warpers located to left are now in service instead of two when this photograph was taken.

2 Carrier traveling outside between buildings. Pointed guard on carrier opens building doors automatically.

3 Carrier stops automatically at this point between slashers and slasher beam storage. The beam of rayon is lowered by use of push-button pendant on carrier. A Cleveland Tramrail hand-propelled crane with electric hoist, in background, serves the efficient beam storage.





Simple Automatic Dispatch System

BECAUSE of efficiency made possible by a Cleveland Tramrail Automatic Dispatch System for the delivery of warper beams from one building to slashers in another building, a large savings of time is being made every day.

Beams are lifted by the Tramrail equipment off the warpers and delivered directly to the slashers or slasher beam storage. The same men operating other equipment can take care of the beam delivery. Practically no floor space is required for the automatic system, because it operates on the ceiling where there is plenty of room. Inclement weather conditions never hold up beam delivery because workers never have to leave the buildings.

Most mills have costly handling jobs on which big savings can be made by use of Cleveland Tramrail automatic equipment. Why not let our engineers look through your plant and offer suggestions?

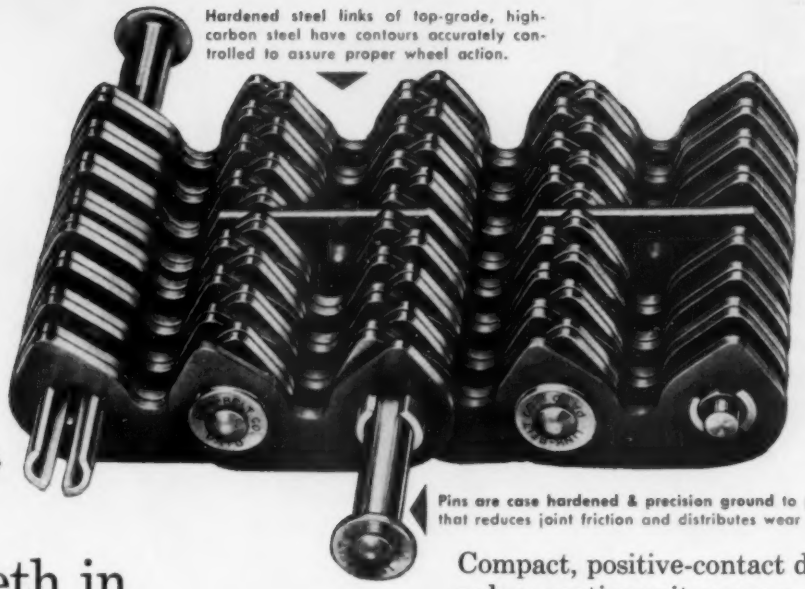
Write for free Engineering and Application Booklet No. 2008. Packed with valuable information.

CLEVELAND TRAMRAIL

Overhead Materials Handling Equipment

CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 8476 E. 287 ST. • WICKLIFFE, OHIO

Hardened steel links of top-grade, high-carbon steel have contours accurately controlled to assure proper wheel action.



Bushings of specially selected steel are case hardened to take joint wear and prevent elongation of link hole.

Pins are case hardened & precision ground to permit free rotation that reduces joint friction and distributes wear over entire surface.

The teeth in Link-Belt silent chain put the bite on drive costs

Compact, positive-contact design reduces entire unit expense

There are big savings to be found by switching to modern, versatile Link-Belt silent chain drives. Smooth, positive engagement prevents slippage, eliminating wasted horsepower. Long life—continuous operation with minimum maintenance for many years is common—keeps production costs down.

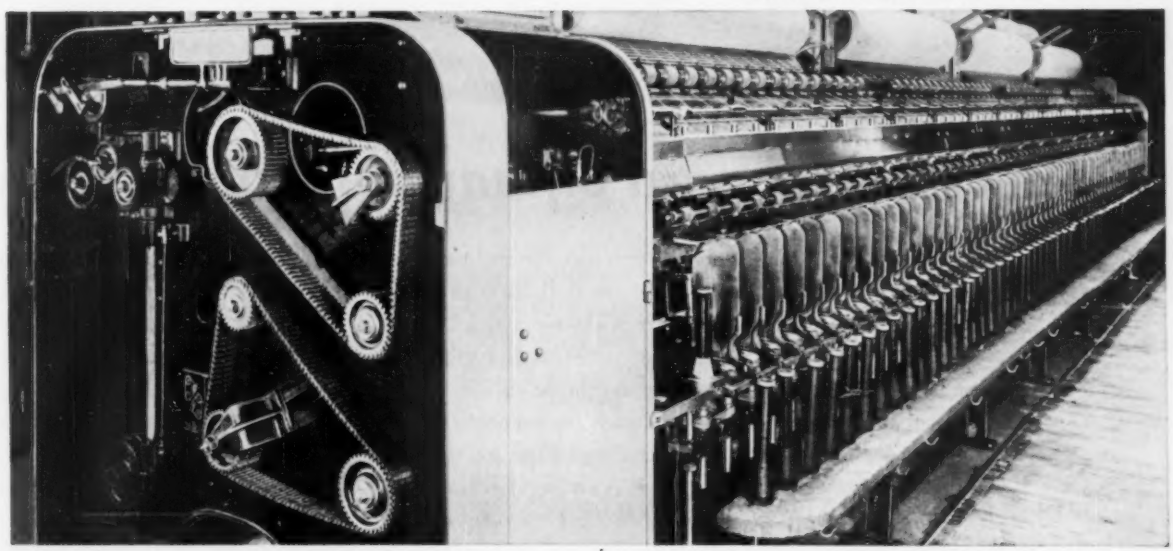
Now consider these additional advantages: dependable operation under extremes of temperature and humidity; easy assembly in tight spaces, permitting built-in drives, compact housings; space saving and efficiency on extremely short centers at ratios as high as 10-to-1.

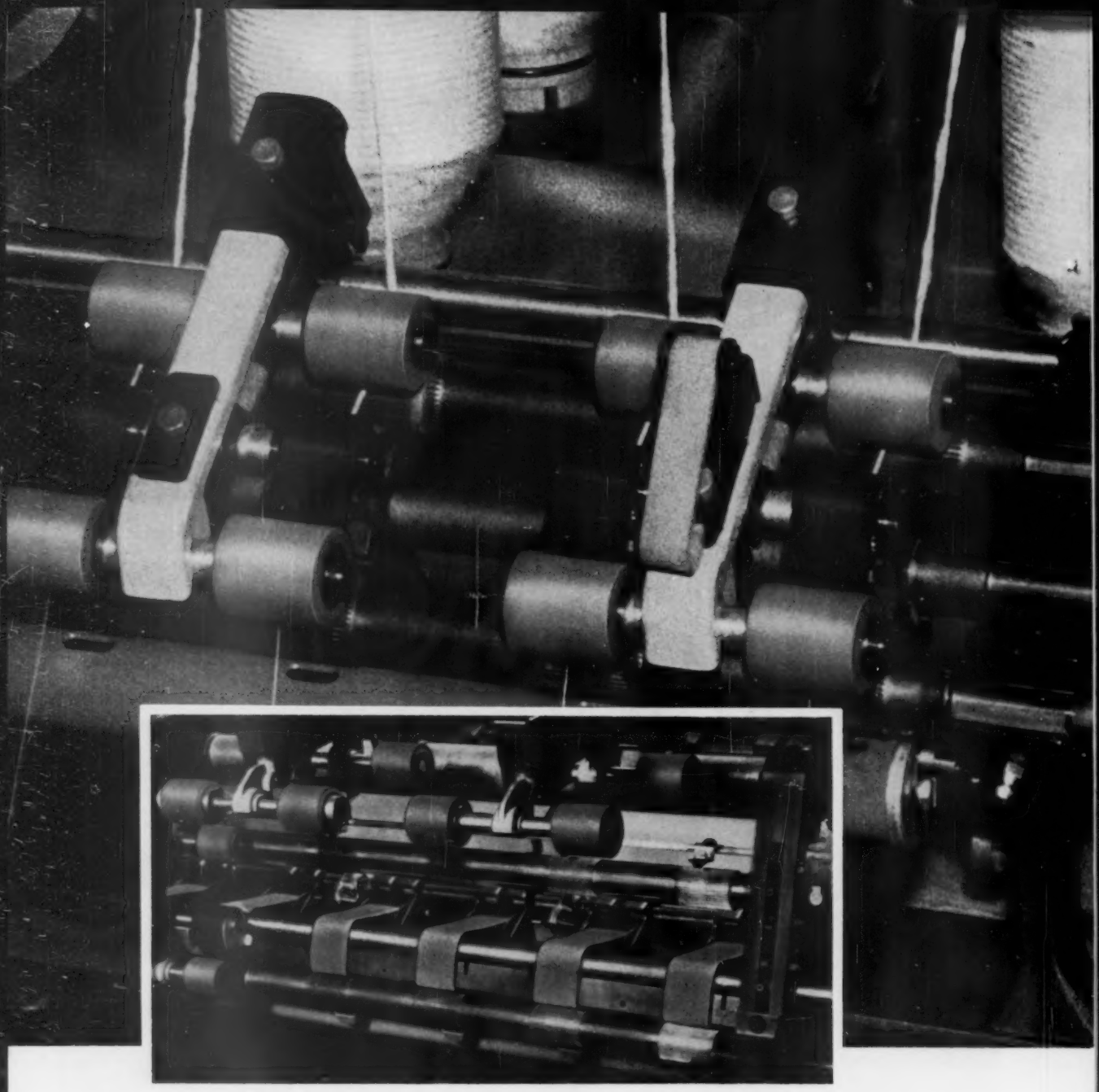
Link-Belt silent chain is available in a full range of types and sizes for either large or fractional-horsepower drives. For full details, call your nearby Link-Belt office or authorized stock-carrying distributor. Look under CHAINS in the yellow pages of your phone book. Ask for Book 2425.

LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

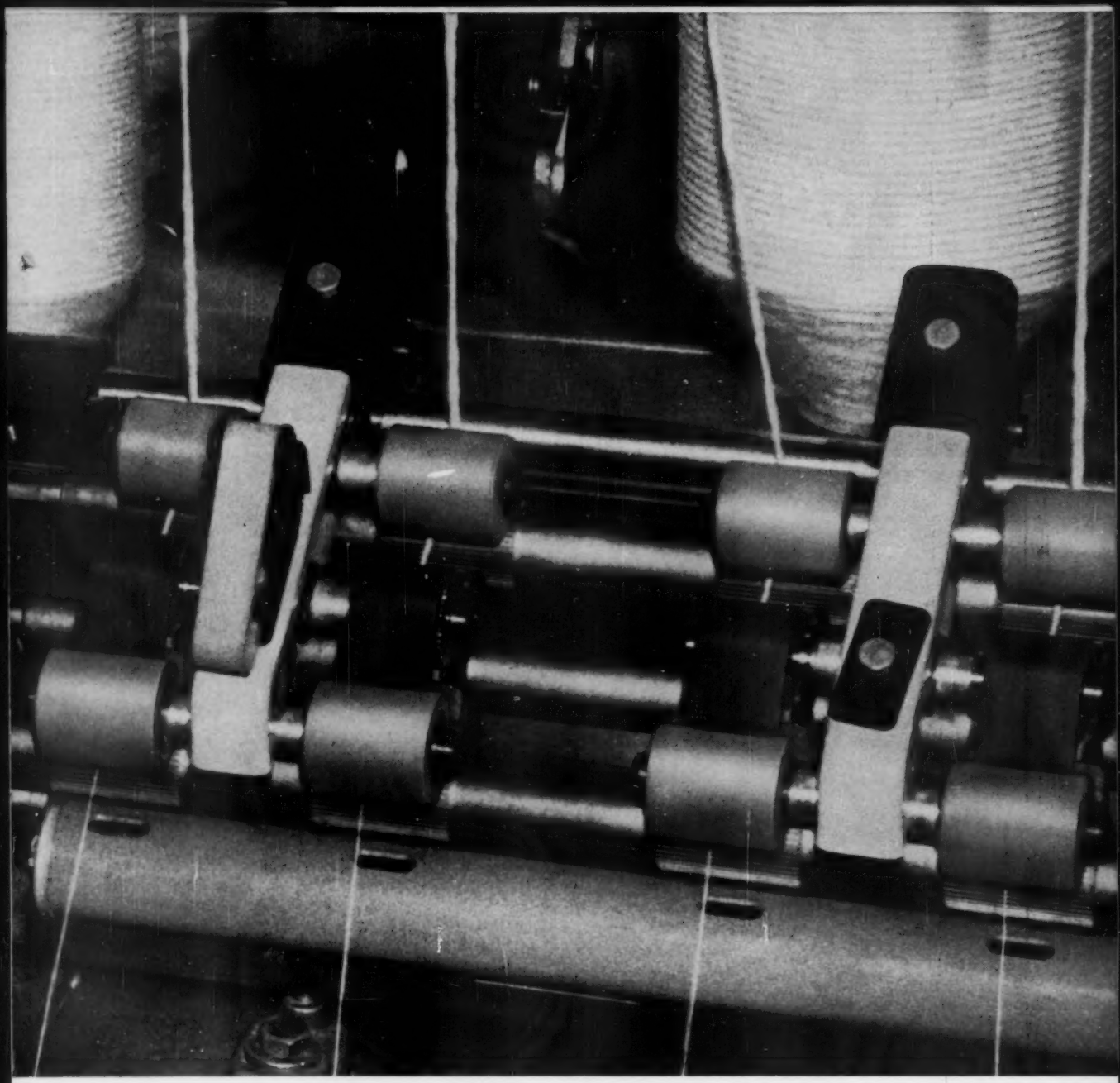
LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World. 15,449-A





Produce better yarn on any spinning system

Whatever the spinning system you use, the right spinning apron can help you get maximum production of top-quality yarns. And there's an Armstrong Accotex Apron designed to do that for you, whether you use a close-pin double-apron system or a long bottom-apron system. • Patented three-layer construction gives each surface of an Accotex Apron the specific qualities it needs. The synthetic rubber compound of the underside has just the right frictional characteristics to assure accurate tracking and smooth drafting action. The outer layer is engineered for excellent fiber handling characteristics to give strong, uniform yarns with any fiber or blend. • A strong cord interliner between these two layers prevents



with Armstrong Accotex Aprons

stretching or curling. Accotex Aprons have the flexibility required for smooth performance, yet remain dimensionally stable through years of spinning. • Why not try Armstrong Accotex Aprons on your own frames? Your Armstrong man will arrange a test installation for you. Contact him or write Armstrong Cork Company, Industrial Division, 6402 Dauphin Street, Lancaster, Pennsylvania.

Armstrong ACCOTEX APRONS

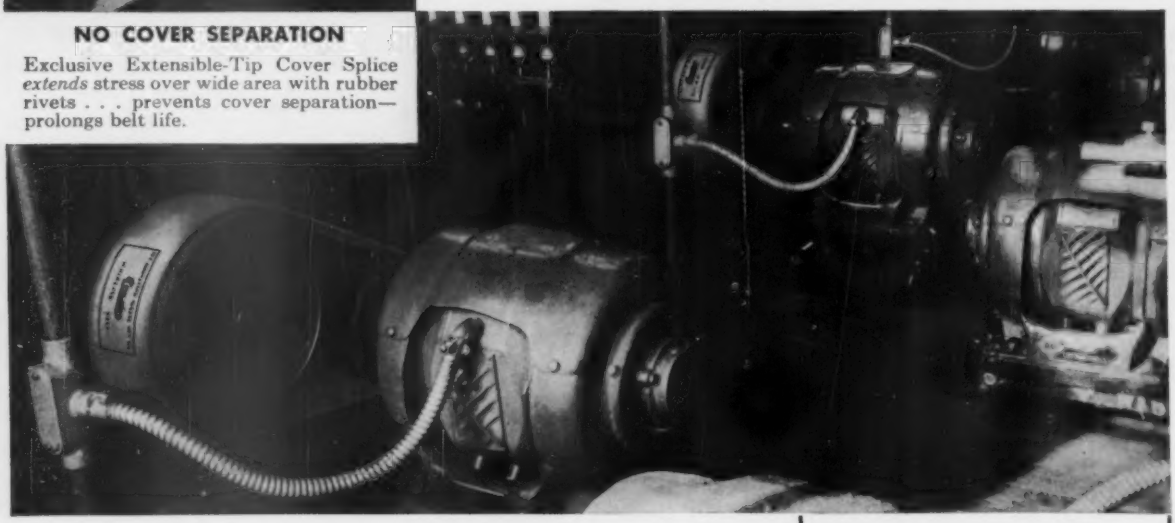
CIRCLE 29 ON READER SERVICE CARD

CONDOR *Whipcord* BELTS

OUTLAST *3 to 10* ORDINARY BELTS

NO COVER SEPARATION

Exclusive Extensible-Tip Cover Splice *extends* stress over wide area with rubber rivets . . . prevents cover separation—prolongs belt life.



Here's the all-purpose belt designed for hard wearing installations—ideal for drives with short centers and small take-up, small pulleys and reverse bends, high speeds and heavy loads at high tensions. Condor Whipcord Belt features an endless-wound, sealed-in cord construction which is prestretched during manufacture.

Extremely flexible, Condor Belts also offer exceptional advantages where serpentine drives supply power for several operations. They won't shrink and are virtually unaffected by atmospheric changes. And Condor's exclusive Extensible-Tip cover splice and rubber rivets dissipate stress when rounding pulleys . . . eliminate cover separation.

The results? Condor Whipcord Belts outlast as many as 10 ordinary belts on the toughest drives! Let an R/M distributor help you select the belt engineered to give *you* "More Use per Dollar."

ADVANTAGES

- **For High Speeds, Heavy Loads, Short Centers, Small Pulleys, Reverse Bends . . . at High Tensions**
- **Low Inelastic Stretch**
- **Length Unaffected by Atmospheric Changes**
- **Extremely Flexible and Strong**
- **No Ply Separation. No Splice in Tension Member**
- **Selection of Driving Surfaces to Meet Tension Requirements**

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RM1052

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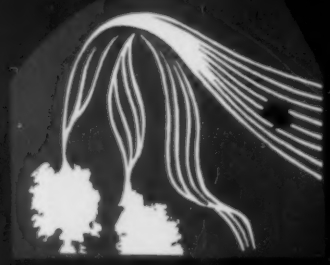
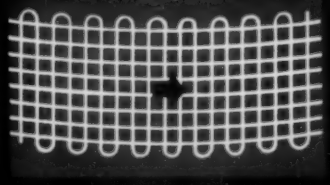
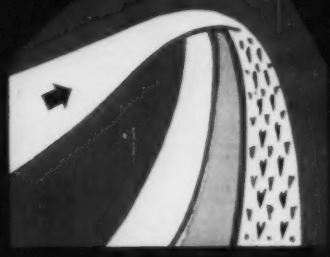
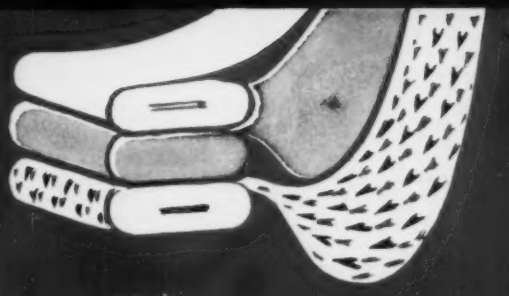
MANHATTAN RUBBER DIVISION, PASSAIC, NEW JERSEY









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Thoughts for presidents

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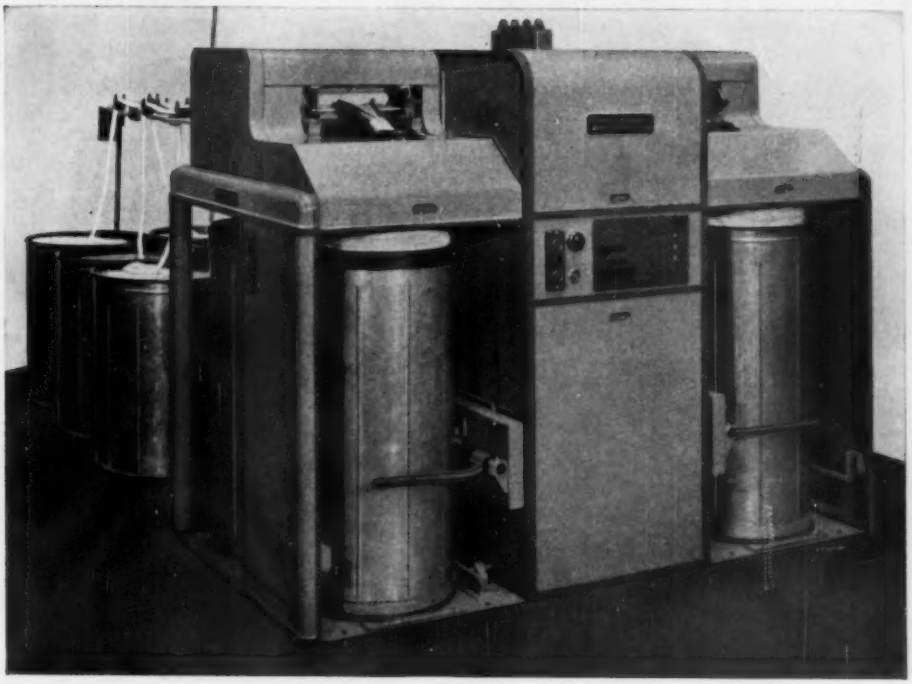

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Make profit of our experiences gathered up in the course of many years.
Our specialists will give you advice for the planning or modernization of complete Spinning Mills for cotton, worsted, staple and man made fibres.

INGOLSTADT DEUTSCHER SPINNEREIMASCHINENBAU INGOLSTADT

The Dayco X7 combines highest resistance to ozone checking and flexing with a unique skin-like surface feel, shown clearly in micro-photo inset. The result is super finger-tip control over roving for perfect drafting of every type of fibre—natural, manmade or blend. Available in all sizes for both short and long apron systems.

The Amazing New Dayco X7 Apron Solves Many Major Drafting Problems

Exclusive, new ingredients add longer life, improve drafting, cut downtime to new lows.

Here's news of a major break-through in apron performance . . . the Dayco X7, with a special new ingredient that greatly increases the durability and the drafting effectiveness of its outer surface.

The Dayco X7 is readily identified by the Dayco triangle and arrow, as well as by the superior performance it gives on every type of drafting frame. Outstanding among its features is the skin-like texture of its outer surface. This improved surface texture made possible by Dayco's exclusive ingredient and processing gives finger-tip control. The result is smoother, easier drafting of all types of fibres and blends.

How well does the Dayco X7 meet other apron requirements?

1. Dayco X7 offers highest resistance to ozone checking.
2. Dayco X7 reduces longitudinal cracking caused by flex (hysterectic loss in molecular strength) to a minimum.
3. Dayco X7 turns without slipping, the bottom apron properly driving the top one without excessive friction.
4. The Dayco X7 inside surface provides the lowest possible coefficient of friction and maximum resistance to abrasive wear.
5. Dayco X7 meets the demand of modern drafting . . . heavier weighting, higher speeds, and higher drafts—so common to newer frames.

The Dayco X7 gives top performance in every one of these respects, and in many others. It drafts all natural and man-made fibres and blends more smoothly and efficiently.

Five years of developmental work by Dayco engineers have made the Dayco X7 a truly superior apron. And more than a year's testing "on the firing line" has confirmed their reports. In tests involving many spindle hours of actual use under every conceivable operating condition, the Dayco X7 has come through with flying colors.

The Dayco X7 is made in all sizes for both short and long apron systems. It is backed by Dayco's high standards of quality and service. It reflects the same careful design and precision manufacture as Dayco standard aprons and other Dayco textile products with which you're already familiar.

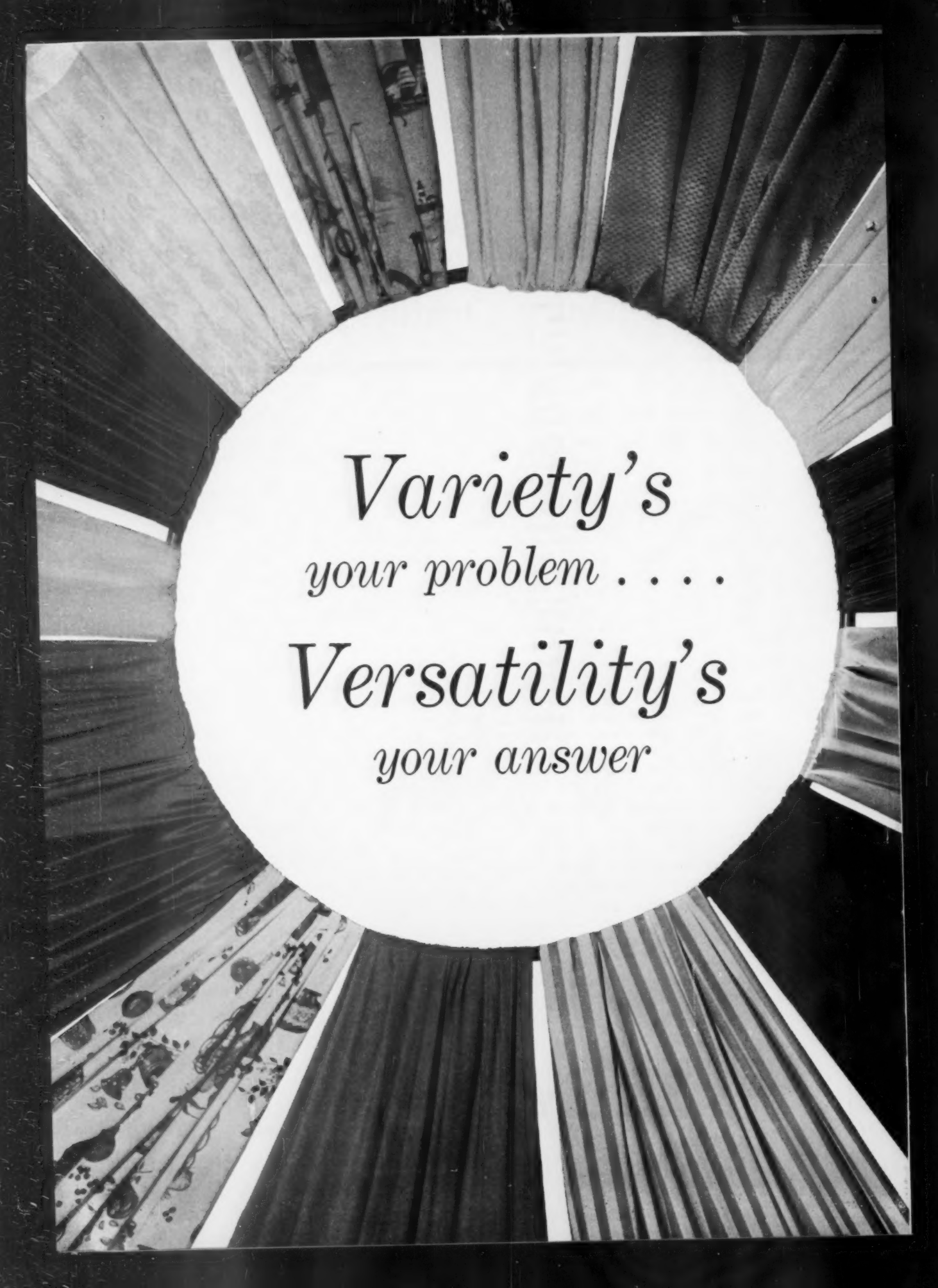
Discover the excellence of this outstanding new apron for yourself. Let your Dayco representative help you arrange a trial of the Dayco X7 in your own operation.

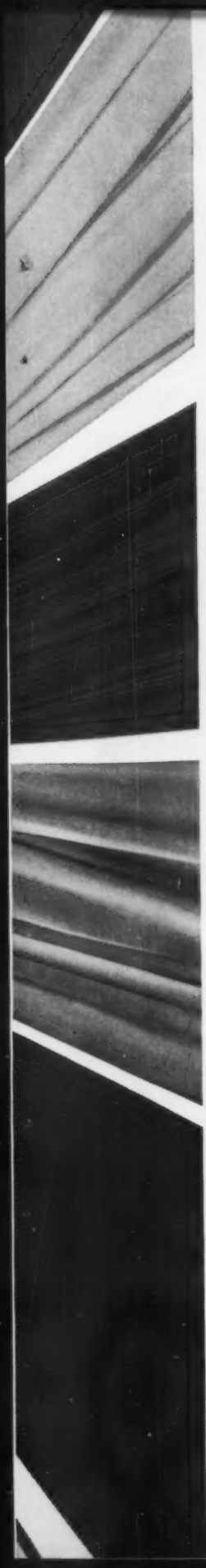
Phone or write Dayco Textile Products Co., 401 South Carolina National Bank Bldg., Greenville, S. C. Overseas plant: The Dayton Rubber Co. Ltd., Dundee, Scotland.

Dayco TEXTILE PRODUCTS CO. Dayco

Divison of Dayco Corporation

CIRCLE 35 ON READER SERVICE CARD


Variety's
your problem . . . .
Versatility's
your answer



Today's changing modes of fabric consumption demand a high degree of weave room versatility. UNIFIL® Loom Winders are bringing this advantage to many modern mills.

With UNIFIL Loom Winders the weave room becomes completely market oriented, because a wide variety of filling yarns may be used; natural and man made; spun filament and textured. The single shuttle weave room can switch filling yarn from one count to another, from one fabric to another as quickly as fashion dictates — *and at no extra cost.*

In addition to minimizing the caprice of style as a production factor, UNIFIL Loom Winders drastically reduce inventory and production planning, work scheduling and employee training. This is accomplished by the elimination of several operations.

UNIFIL's unmatched versatility meets today's needs and tomorrow's markets. It allows mills to wind from any filling supply *economically*. Quills are wound and shuttles loaded, empty quills stripped and returned for rewinding — *all automatically at the loom!*

The UNIFIL story is one of versatility and economy. It clearly indicates why leading textile mills consistently reorder UNIFIL Loom Winders. Call your nearest Leesona Sales Engineer — in Boston, Philadelphia, Charlotte, Atlanta or Los Angeles. Or write LEESONA CORPORATION, P. O. Box 1605, Providence 1, Rhode Island. Keep pace with your market with UNIFIL.

Some of the many modern mills
that are meeting today's challenges with
UNIFIL *Loom Winders*

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AMEROTRON COMPANY
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BERKSHIRE HATHAWAY, INC.
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CONSOLIDATED TEXTILES
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EXPOSITION COTTON MILLS CO.
GALLANT MFG. CO.
GLEN RAVEN SILK MILLS
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WAUMBEC MILLS, INC.
WOODSIDE MILLS

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CIRCLE 37 ON READER SERVICE CARD

News about

B.F.Goodrich Chemical *raw materials*

Hycar helps the hunt for new markets,

shows how to improve lofty constructions

Washable and dry cleanable insulated apparel is just one example of the growth market in lofty constructions getting a boost from formulations for spray bonding based on Hycar nitrile latex. Lofty interliner constructions made by spraying with Hycar have excellent resilience and dimensional stability. The problem of shifting or leakage of fiber is minimized.

Even the smaller regional manufacturer may profitably adapt his operations to the production of Hycar spray-bonded battings. Since existing equipment is frequently sufficient, only small additions involving spray and heating equipment may be required.

It may pay off in increased profits to get the complete story of how Hycar nitrile latex can help produce better non-wovens. Here's another example of the service you can get to produce better textiles, for wider appeal, at lower costs. For information, write Dept. PF-2, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

PRODUCTS FOR TEXTILE IMPROVEMENT

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GEON • HYCAR rubber and latex
GOOD-RITE chemicals and plasticizers

We'd like to know . . .

. . . what you think about the ideas in the article that begins on page 44 of this issue of TEXTILE WORLD. In that article nine textile men tell how they see (1) the need for research and development (R&D) in the industry, (2) the big problems R&D should move in on, (3) the distribution of responsibility for conducting R&D and paying for it, and (4) the prospects for payoff.

These nine men are thoughtful men. Much of their thinking is fresh and bold. We think it's practical, too. But we are sure these nine men, knowledgeable as they are, would be the last to claim their words are the final words on R&D. And we are equally sure they would be the first to welcome ideas for strengthening the machinery by which textile research is programed and brought to fulfillment in new products, new machines, new methods, and new profits.

We think the need for more R&D in the industry is urgent. And we think that the views of these nine men could be the start of a significant new advance in the industry. We therefore hope you won't let this matter drop after you've read the article. Instead, we hope you'll put your imagination to work on this pressing industry need, then tell us your own views. Why? Because significant industry ideas need a forum. TEXTILE WORLD welcomes this role.

Meanwhile, please bear with us as we unburden ourselves of half a dozen quick "Don't" about R&D. We think these "Don'ts" will weigh heavily in the success or failure of R&D. Here they are:

- *Don't neglect fundamental research.* Granted, you can seldom see an immediate payoff from fundamental research. But it does provide the pool of basic knowledge from which applied research and engineering draw the ideas that do pay off. Fundamental research must constantly replenish the pool.

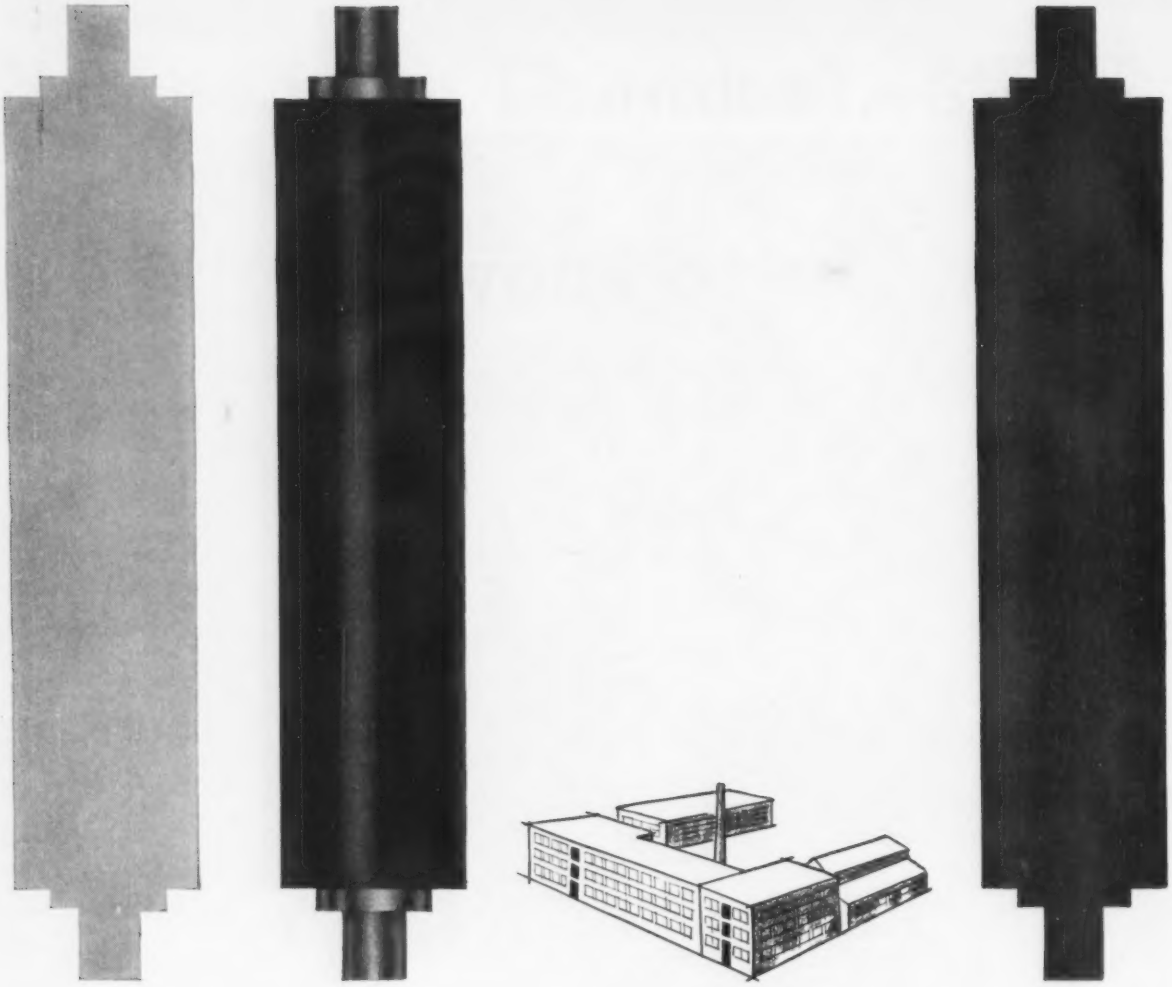
- *Don't be impatient.* A recent McGraw-Hill study shows that up to seven years may pass before the impact of a research study is fully reflected in sales or capital expenditures.

- *Don't be discouraged.* Lots of ideas may fail before a winner comes along. According to Booz, Allen & Hamilton, management consultants, it takes an average of 40 ideas to yield one successful product.

- *Don't pinch pennies.* The industry will get just about what it pays for—and no more. Booz, Allen & Hamilton point out that R&D expenditures bring new products and bigger markets and are a big factor in the growth of industrial capacity. In this connection the textile industry, which spends from 0.2 to 0.3% of sales for R&D, now has about 21% more capacity than in 1950; paper, spending about 0.5% of sales for R&D, has about 65% more capacity than in 1950; electrical machinery, 6% of sales for R&D and 115% more capacity.

- *Don't be satisfied.* R&D is an endless road, but profit-taking stations often are strung out along the way. For example, only a few days ago a textile man told us how R&D recently had cut one process from 40 minutes to 30, then from 30 to 22, and then from 22 to 8½. Who's to say that 8½ is the end of the road? The trick is to take your profit at every profit station—and keep moving ahead.

- *Don't try to go it all alone.* Sure, a company has to do some R&D on its own, and it has to keep some of its advances quiet. But total secrecy about problems—and about answers as well—is risky business. In many an instance secrecy could mean needless multiplication of effort and waste of time and money—several companies, each in the dark about what the others are doing, all spending money to find the same answers to the same problems. More rewarding R&D calls for more problem-sharing and for more answer-sharing.



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With almost 50 years of specialized experience in textile air conditioning, Bahnson engineers can more efficiently analyze your air conditioning needs. Based on expert professional counsel in the beginning, correctly engineered component parts can be fitted correctly to specific operating and manufacturing requirements.

Let a Bahnson representative assist you in your air conditioning needs. There is no obligation.

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TEXTILE WORLD

Management Bulletin

Things you should know about . . .

Long-Term Leases

New plan announced by Nationwide Leasing Co., Chicago, extends lease terms for mill equipment to as long as 12 years. Up to now, most lease deals have been limited to an average of about 4 years. If your company is worth $1 million, has had five years' profitable operation, and equipment has a depreciable life longer than the lease term, you're in business. Plan offers deals on as little as $25,000 worth of equipment.

Social Security

New booklet sums up changes in Social Security law that affect both contributions and scales of payment. Contents include average earnings formula, special women's benefits, "proofs" for claiming benefits, lump-sum death payments, disability benefits, and permissible earnings for social security beneficiaries. Booklet is available in quantities for employee distribution. Write Commodity Research Publications Corp., 82 Beaver St., New York 5, N. Y.

Management Trainees

Prime source of top-caliber finance and administrative trainees: Harvard Business School. Students there have formed "The Student Small Business Program," expressly for young men interested in smaller companies. And there's a switch: They're seeking out potential employers. More than 200 students are involved in 1961. If you're on the lookout for a man, contact L. N. Hurwitz by phone at UNiversity 4-8032, Cambridge, Mass., or write to him at Soldiers Field, Boston 63.

Safety Pointer

National Safety Council reports this "Accident of the Month": slasher operator's apron got caught in revolving beam, almost killed operator. Reason: improper clothing. Way to protect your mill's record: Make sure all supervisory personnel are enforcing safety clothing rules. Call a meeting if necessary, so hands will know you're serious about the rules.

Operating Committees

Survey of 1,200 executives taken by Harvard Business Review found most top managers felt five to be the ideal number for a committee's membership. Other findings: meetings take longer than expected; committees tend to be too large. But despite flaws, only 8% of executives recommend abolition of committee system. Tip for running a committee meeting right: set a definite agenda and a time limit for each meeting.

"It is natural to assume...some correlation between research expenditure and profits."

"Severe competition...is increasing from foreign sources."

"An entirely new concept is needed in textile machinery."

"...a broad industry-wide basis, fully supported by textile manufacturers, cotton growers, and machine manufacturers and/or their respective trade associations."

"We also need research into the application of the principles of automation to all existing textile processes."

EXECUTIVE OPINION

Research and Development: The 4

Nine leading textile men, responding to a question from TEXTILE WORLD, identify the problems that call most urgently for research and development. They chart a course that will keep their industry up front—and moving fast —in the progress parade.

"WHAT PROBLEMS most urgently need research and development in the textile industry?"

That is the question TEXTILE WORLD asked nine thoughtful textile men not long ago. (To see who these men are, look at the panel below.) Their answers to TEXTILE WORLD's question are thoughtful. And though their analyses of industry problems differ in details, these men come close to unanimity on a broad basis. For the top problems the industry faces, they pick four:

- Textile manufacturing.
- Fiber understanding.
- Fabric engineering.
- Quality upgrading.

Just as important, they are near unanimity in their feelings about the approach needed to solve these problems. By and large, here is how they see their industry and the approach it must take to solution of its problems.

1. The textile industry is not a "mature" industry, incapable of further progress. Far from it. The fact that it dates back into antiquity is no real barrier to its moving ahead today. There is much that needs doing right now—and lots of room for progress (research, development, inventions, breakthroughs) in the years just ahead.

2. The industry faces some really pressing and difficult problems. But they are not unanswerable.

3. The industry must close ranks. Though individual companies must do some kinds and degrees of research on their own, the time has come for them to join forces in behalf of the whole industry and make common cause on a broad front against the common problems.

4. The research program the industry needs will cost a good-sized sum of money. But failure to spend the required money would be even more costly.

5. Participation must come from every quarter—textile manufacturers and finishers, textile-machinery makers, fiber manufacturers, and the chemical industry. Even the federal government has its own special role, as do textile engineering schools and research institutions.

6. Some central planning and direction would help. In fact, this may be the best way to integrate the attack. Without it, there's a risk of wasted time and energy, duplication of effort, and multiplication of costs.

These Are the Men Who Analyze

VERNON R. BOURDETTE is Information Officer, Southern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture, New Orleans. Mr. Bourdette is a colleague of Mr. Cheatham (next column).

MALCOLM B. CAMPBELL is Dean, School of Textiles, North Carolina State College, Raleigh. Under his administration the School of Textiles conducts a broad program of fundamental, engineering, and applied research.

R. J. CHEATHAM is Chief, Cotton Mechanical Laboratory, Southern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture, New Orleans. He is a colleague of Mr. Bourdette (above).

SIDNEY M. CONE JR. is President, Research and Development Division, Cone Mills Corp., Greensboro, N. C. He comes of a family long distinguished in tex-

...base financial support on the number of spindles or looms of the mills participating in the program..."

"We need to improve wash-and-wear finishes, especially on cotton."

"We need a thoroughgoing study of the functional properties required of textile materials."

"The finest incentive industry can have for doing research is a consumer demand for better quality--and our consumers today are demanding better-quality fabrics."

Big Jobs, and How to Do Them

Now, to see why these nine textile-industry leaders believe acceleration of research and development is urgent, how they see the problems ahead, how they would seek the answers to these problems, and how they count up the payoff for research and development, read on.

WHY RESEARCH IS URGENT

Here are the compelling reasons these nine textile men see for moving ahead with all possible speed on research and development:

Boost profits—"One recent analysis found that, out of 11 industries studied, the top three spent nearly 6% of sales on research and experienced a 52% gain in profits. The lowest three spent only 0.2% on research and saw profits shrink 3%. Of course, there were many other forces at work. But it is natural to assume that there must have been some correlation between research expenditure and profits. The textile industry itself is estimated to be spending currently 0.1% of sales for research and development."—*Dean Campbell.*

Recapture markets—"In recent years cotton's greatest loss in its traditional markets was not to man-made fibers but to non-textile products, chiefy paper. And the paper industry has been investing heavily in research in recent years. A half-dozen paper products that have invaded the textile field—shipping sacks, industrial tape, electrical insulation, napkins, toweling, and facial tissues—have displaced textiles to the tune of more than 2-million 500-lb. bales of fiber a year. In the early 1950's textile and apparel manufacturers were performing nearly $16-million of research annually; the paper industry, only $11-million. By the end of the decade textile spending had slightly more than doubled. But paper was spending six times the 1951 level—twice as much as textile spending"—*Dean Campbell.*

"A large competitive factor is gaining in importance as paper, nonwoven fabric, and plastic film are being used to supplant textiles for many purposes. In many places these substitute materials are performing the job equally well and at less cost"—*Mr. Higgins.*

Outrun imports—"Severe competition is increasing from foreign sources"—*Mr. Higgins.*

"If present policies on imports are continued and the standards of living in the other textile-producing countries of the world are not increased to compare with our own, then we must expect to compete for markets in which the labor costs in our products are considerably higher than those in many countries. To compete, even in the American markets, our industry must reduce its costs significantly"—*Mr. Hance.*

Attract and hold skilled manpower—"The great sociological strides made during the last quarter-century and the resulting improvements in general living standards are creating a manpower shortage for the textile industry. The industry must upgrade its working conditions if it is to compete with other industries for available manpower. Technological improvements in the manufacture of textiles, well publicized, are likely to stem the tide of manpower leaving the industry and remove one of the barriers that keep new blood from entering the industry"—*Mr. Werner.*

. . . *Turn the page*

Today's Research and Development

tile manufacturing and marketing.

GASTON GAGE is Dean, School of Textiles, Clemson College, Clemson, S. C. The Clemson school, like the one in Raleigh, conducts basic, engineering, and applied research in textiles.

L. H. HANCE is President, Institute of Textile Technology, Charlottesville, Va. He is a veteran researcher and administrator in textile technology and manufacturing.

RICHARD R. HIGGINS is President, The Kendall Co., Boston. Under his leadership the far-flung operations of his company set a fast pace.

JOHN E. REEVES is President, Reeves Brothers, Inc., New York City. He heads a fast-moving, hard-hitting company that is always pressing hard for new answers, new products, new markets.

JACK C. WERNER speaks for Werner Textile Consultants, New York City, an organization to which many textile operators turn for counsel.

Four Big Problems in Search of Answers

1. TEXTILE MANUFACTURING

No. 1 need of the textile industry is a series of breakthroughs in machinery, brand-new concepts in manufacturing, and complete elimination of some of the traditional manufacturing steps. That's the opinion of nearly every respondent to TEXTILE WORLD's question.

Mr. Higgins, for instance, puts it directly, in few words: "Processing-cost reduction requires research into better machinery, higher speeds, fewer processes, greater automation, and continuous processing *vs.* traditional batch processing."

Says Mr. Reeves: "Performance of the various synthetic fibers requires adequate adaptation of the different processing steps in spinning, weaving, and finishing, including the dyeing techniques. This includes the processing of fiber blends, man-made and natural in particular. . . . Emphasis has to be placed on the mechanical development of our textile machinery . . . Cooperation with our highly efficient textile-machinery industry will lead to basic changes in the concept of our inherited though modernized spinning and weaving equipment."

Dean Gage sees the problem in very specific terms: "We need a breakthrough in the present limitation on loom speeds, and we need research on traveler design and balloon control in the spinning stage of manufacturing."

Mr. Werner sees it in broad terms and specifics as well: "An entirely new concept is needed in textile machinery . . . There is nothing to be gained by maintaining too many separate and unconnected operations in the production of fabrics. For example, laps, slivers, roving, and yarn on bobbins add nothing to the value of the end product."

Mr. Werner continues: "Technological research should be directed to better ways of removing trash, short fibers, and other impurities from cotton. Beating cotton is too primitive and inadequate a method. Reducing these impurities to dust by chemical or ultrasonic means, and then separating them from the good lint, appears promising as an avenue of approach. Research and development should be expanded to improve drafting systems also. Mechanical solutions will always result in long- and short-term variations. Efforts should be directed toward metering the fibers electronically in an even flow with perfect parallelization, if desired."

Mr. Werner adds one more comment, attributing the idea to a recent address by Walter Regnery, president, Joanna Mills: "Substantial benefits lie in three areas of development: raw-material improvements, a new concept of carding, and the design of a card responsive to this concept."

Messrs. Cheatham and Bourdette, of course, confine their comments to cotton. Even so, they see manufacturing as a prime problem. Listen:

"Though machines and methods for processing cotton have greatly improved in the past 50 years, modern textile mills still use about 15 discontinuous processes, requiring an excessive amount of labor, in manufacturing cotton into fabric form. This compares unfavorably with the continuous systems used in papers and plastics manufacturing.

"Radical new methods in processing cotton into textiles are needed to meet the mounting competition cotton faces from plastics, paper, nonwovens, and continuous-filament man-made fibers, which require fewer stages in processing than staple fibers," Messrs. Cheatham and Bourdette conclude.

Instruments, controls, and automation—If eliminating manufacturing steps is one special area for research and development, another wide-open area is instrumentation, automation, and control. Here's how the respondents see it:

Says Mr. Cone: "Allied to the manufacturing processes themselves are controls, ranging all the way from mechanical to highly developed electrical and electronic units and systems . . . Research into automatic controls is a fascinating facet of the textile picture. The cost of the control related to the size of the machine and related to the speed and length of the run is giving textile management some interesting calculations."

Dean Campbell sees it this way: "The industry needs to develop ways and means of producing more uniform yarns and fabrics through more accurate control of fibers in process . . . We now have improved machinery for making textile materials, new devices for measuring quality accurately, and the proven concept of statistical quality control. More knowledge is urgently needed as to how these tools can be used to make vast improvements in the quality of all types of textiles."

Dean Campbell goes on: "We also need research into the application of the principles of automation to all existing textile processes. Especially in this country, with our high wage scale, it is going to be increasingly necessary to make the machine take the place of the man. Automation has produced miracles in other industries, and of course it is no newcomer to textiles . . . Electronic controls and new materials can bring great improvements in textile processing machinery. Higher rates of production, too . . ."

Mr. Werner also looks for automation on a still higher level: "Development work should be done on program-control systems to be used to position the movable parts of a textile machine continuously or intermittently in a predetermined pattern or sequence. For instance, we should look for applications of automatic control systems that use (or could use) programed inputs to make or handle a variety of individual pieces or parts on a single machine or a combination of single machines that are not tied together by the product. Example? Control of a knitting machine or a jacquard loom or printing machine from a punched tape that determines the

pattern or form of the end product."

Mr. Hance sees the problem of mechanization and automation in somewhat less complicated terms: "The areas of approach to the problem of lower costs are relatively simple and well known. Increased production rates with proportional decreases in the costs involved would permit an over-all decrease in net costs. Such increases might be achieved with present equipment or by the introduction of new equipment evolved from innovation—or both . . . Cost also might be reduced by a decrease in the components that comprise total cost. Specifically, labor costs might be reduced through a reduction in processes or through some means of automation."

2. FIBER UNDERSTANDING

You can't manufacture better, lower-cost products until you learn all you can about your raw material. Knowledge of raw material, by number of mentions among the men who answered TEXTILE WORLD's question, is Problem No. 2.

This is no ivory-tower matter. Two operating textile men spoke out on the subject—spoke out loud and clear.

First, here's Mr. Reeves: "The most urgent task of our research will now be to clarify the situation in the man-made-fiber field, which becomes more and more diversified and threatens to become confusing for both processors and consumers. Such diversification in itself has proved to be of great value for our basic understanding, and it was a challenge for continuous improvements and developments. But we are now at a point where we will have to look critically at the introduction of new fibers and of modified existing fiber types. Rather than be guided by mere promotional advantages of another novelty, we should be directed primarily by the needs of the textile market. The volume of this market fortunately is bound to grow steadily, but requirements for performance also become more and more stringent, and for equal performance greater economy is the password."

Next, Mr. Higgins: "There is need for more and better instruments to appraise the quality of cotton. An appraisal of spinnability, for example, is important. The variation of cotton as a natural product is an ever-present source of difficulty to mills, and new factors continue to surprise and upset mills. Mechanical harvesting has set up a chain of circumstances that have made radical changes in the character of American cotton. The federal agricultural policy has created a situation in which farmers are growing cotton for the loan, rather than for the mills . . . Continued research in cleaning, surface treatment, blending, fiber damage during processing, and the relation of cotton-fiber properties to end-product requirements is important."

The research men see the problem in much the same way.

Take Dean Campbell, for instance. He says: "We need an intensive and extensive study of the complete properties of all textile fibers, natural and man-made, and the relationship of these properties to those of the yarns and fabrics made from them . . . Certainly such industries as aircraft, petroleum, electronics, and rubber could not have made their tremendous advances without such knowledge. A long-range program of textile research and development must have, as its very foundation, just as thorough a scientific knowledge of its raw materials as any other industry. Textile fibers are not simple structures, and money, time, and—above all—brains are required to get this essential information."

Dean Campbell continues along the same line: "Of perhaps greater importance is the need for scientific understanding of the relationships of fiber properties to those of the products made from them. This is a complicated problem, and the complications are compounded by the fact that today so many yarns and fabrics are made from blends of fibers. Nevertheless, the textile industry must have this information to be in a position to meet the critical specifications that will be the rule in the future."

Messrs. Cheatham and Bourdette see the same pressing need: "The industry needs to develop precise and rapid methods for measuring the physical properties of fibers so that presently available cottons can be selected and blended in the proportions necessary for optimum processing efficiency and product quality."

Dean Gage states the problem simply and directly: "What we need is a basic understanding of what makes spinning quality in all fibers and their blends."

3. FABRIC ENGINEERING

Fabric improvement, based on study of fabric requirements and characteristics, is Problem No. 3, by number of mentions and amount of attention respondents gave to TEXTILE WORLD's question.

Starting point, according to Dean Campbell, is the functional requirement of the fabric. He puts it this way: "We need a thorough-going study of the functional properties required of textile materials. Just what properties are needed to facilitate the making-up of clothing? Of household fabrics? Of fabrics for industrial uses? What properties contribute to the aesthetic values of textiles? Exactly what properties should a fabric have to retain its freshness after a period of use?

"The advantages of the scientific approach to fabric development were illustrated during World War II in the design of 'Shirley' cloth, for example. Wash-and-wear fabrics were the result of this type of investigation, and they have been a real boon to the industry. Improvements in this field are needed, but studies are already under way that

"We are now at a point where we will have to look critically at the introduction of new fibers and of modified existing fiber types. Rather than be guided by mere promotional advantages of novelty, we should be directed by the needs of the market."

may revolutionize the entire field."

Dean Campbell goes from there into new uses for textile materials: "Other industries find it rewarding to spend time, money, and talent on this search. It is no easy task to sit at a desk and conjure up new applications for textiles. But who would have thought a few years ago that tough, sturdy boats would be made of glass fiber? Or that moving sidewalks with a fabric base would be practicable? A friend of mine has a patent on a fabric that prolongs the life of railroad ties. And our own laboratories have produced knitted man-made-fiber aortas by the hundreds for saving human lives. Surely there are places where textiles can be used to better advantage than other materials now being used."

Mr. Higgins is thinking along the same line when he says: "A sound means of improving the competitive position of the textile industry is to have continued and accelerated development of specialty, technical, or engineered fabrics that will perform old functions better—and open up new markets. This program is good for American mills individually and for the American textile industry's competition with cheap foreign labor."

Mr. Cone sees many a need for which there is yet no altogether suitably engineered fabric. Why? Because self-contradictions in the specifications make it tough to engineer and produce suitable fabrics. Research is urgently needed, he contends. Listen as he speaks up:

"We prefer to stay close to the everyday uses of textiles and to direct more inquiry into combining warmth with light weight, stain resistance with washability, water repellency with air permeability, and other such seemingly contradictory specifications. The self-ironing characteristics of cotton need further investigation, because this characteristic is valuable and the cotton fiber is cheap.

"Industrial and home-furnishing and hospital uses suggest another series of contradictory needs. The hospital bed has a layer of fabric for absorbency and a second layer for repellency. An industrial fabric may require rigidity for strength combined with flexibility. The practical role of draperies in the home is to cut off the heat and present an opaque view to the passerby without creating a fire hazard or cutting off the light. A carpet at the front door could be designed to clean the caller's feet without itself getting dirty. It should have an adequate pile surface, yet launder easily and dry quickly. It should grip the floor without sticking."

Messrs. Cheatham and Bourdette state this urgent problem swiftly and effectively: "The industry needs to establish the relationships between fabric properties and the functional and service life of cotton products to facilitate the development of more useful cotton products."

As for engineering new and better fabrics, Mr. Reeves sees an especially promising field in nonwovens. He says: "Undoubtedly nonwovens will continue to grow in volume in the same measure in which they improve in end-use performance. Mechanical problems and chemical processes here are closely interwoven to yield materials of strength and durability. Both natural and man-made fibers and their blends should share in this future market."

4. QUALITY UPGRADING

There's no area of textile manufacturing that doesn't offer opportunity—and challenge—for quality improvement. Here, according to the respondents, is Problem Area 4 for research and development.

Take Mr. Werner, for example. He lines himself up with Walter Regnery in stressing the importance of improving the raw material as the start of improvement in processing and in final product.

Messrs. Cheatham and Bourdette take much the same position: "Research is needed," they contend, "to upgrade the quality of cotton fabric by more efficient removal of waste (particularly short fibers from the spinnable lengths), to improve the uniformity of yarns and fabrics, to utilize cotton's full fiber potential in processing and in product quality, and to streamline cotton-processing methods to get higher efficiency."

Messrs. Cheatham and Bourdette take off on another line also—the development of desirable chemical and other qualities: The industry must improve the resiliency properties, the chemical properties, the shape and surface properties, and the tensile strength of cotton products. It must also develop lofty, bulky fabrics and cottons with thermoplastic properties."

Wash-and-wear—This is today's most urgent area for quality improvement, the respondents say.

Dean Gage comes straight to the point: "We need to improve wash-and-wear finishes, especially on cotton fabrics."

Messrs. Cheatham and Bourdette see it this way: "The problems created in the developments of wash-and-wear are currently as important and urgent to the industry as the original development. The problems now include finding better wash-and-wear finishes—finishes that will not reduce fabric strength, that are not subject to discoloration caused by chlorine-type bleaches, and that eliminate pucker in garments after laundering. Our own scientists are going deeper into the wash-and-wear field. They are seeking ways to improve conventional methods involving the usual resins and crosslinking agents, new types of crosslinks capable of being broken and reformed at will, thermoplastic cotton materials, and optimum fabric structures for wash-and-wear products."

Mr. Reeves, like the others, sees improvements in wash-and-wear as a "must." But he looks further, too: "Inroads of the man-made fibers had their obvious reaction in the natural fibers, which had to fight back. . . . Here the impact of chemical knowledge and scientific research proved its growing importance. For cotton in particular, progress has been considerable. But much work remains to be done on the entire front, from field to textile plant. As great strides have been made in selection of species and improved harvesting methods to supply high-quality fiber to the mill, so chemical processes are used to add performance features that the market now asks for.

"The so-called wash-and-wear tag has become an almost commonplace designation for a requirement that has not been altogether successfully met up to now. Chemical methods to modify the cotton cellulose molecule as well as fabric finishing procedures will have to be pursued further."

"The so-called wash-and-wear tag has become an almost commonplace designation for a requirement that has not been altogether successfully met up to now. Chemical methods to modify the cotton cellulose molecule as well as fabric finishing procedures will have to be pursued further. We need the best obtainable permanence in wear and tear in cleaning for properties such as wrinkle resistance, water repellency, and so on. Better resistance to soiling, staining, and burning, and improved warmth properties with higher bulk at lower weight are other areas for research."

Finally, Mr. Cone comes to grips with the practical problems of product evaluation. He sees them this way:

"Evaluation of the fiber, fabric, and styling depends on testing equipment and methods that can predict . . . the probable permanence of the qualities that have been developed. Research into test methods continues to attract the attention of our technical societies. Many important industries are supplementing laboratory tests with wear tests . . . The wear testing of textiles is a fascinating study for one with a practical turn of mind. The prediction of wearability . . . is derived from a mass of mechanical testing that seeks to anticipate the specific uses to which the fabric will be put. Research into the testing apparatus—and the interpretation of the findings of the apparatus—constitute a valuable and extensive project."

Who'll Do the Research?

A few of the men who answered this question from the editors tend to lean on outsiders for help in research and development. Others say the responsibility rests solely on the textile industry. Most of them, however, seek to muster all possible forces for a big, sweeping, industry-wide move forward.

Listen to Mr. Reeves:

"The objectives involve not only the textile manufacturers but also different sections of the chemical industry. This makes it imperative to coordinate rather different lines of research activities.

"The man-made-fiber field especially offers challenge and opportunity for such cooperation. The chemical (particularly petrochemical) industry, rich in scientific brain and technical facilities, should use more and more the experience of textile researchers and technicians in producing, processing, and marketing textile fibers and products.

"Nevertheless, individual research work within the framework of the individual organizations is—and will remain—advisable to meet specific requirements and to keep alive the challenge of competition.

"We also have the benefit of our textile research organizations sponsored by the government (such as the Southern Regional Research Laboratories) as well as independent institutes and several active textile schools. They have rendered invaluable services to the industry, mainly in improvements connected with the natural fibers. Their experience obviously has to be used for development in the man-made-fiber field.

"Yet the fiber people, the chemical people, the polymer people, and all other phases of our industry are carrying out their own research programs. Certainly there is a lot of duplication and wasted effort. Some method should be devised to coordinate these programs."

Dean Campbell's view is not greatly different.

"Schools of textiles, schools of engineering, new industry-supported laboratories—these are the logical places to carry out the work . . . In Japan about 28 engineering schools employ about 100 researchers on textile problems, plus researchers in nine textile colleges. This is the same as putting three people to work on textile problems in every major engineering college from New Jersey to Alabama.

"As for industry-supported research institutions in textiles, the Shirley Institute in England employs about 600 persons in research and development for the cotton and man-made-fiber textile industries. India has a new . . . research institution in Ahmedabad, supported by the big textile industry in that area.

"Textile associations of the United States might raise funds from member companies to build and staff laboratories and farm out research."

"Lastly there are the fiber producers and other chemical firms, the large textile corporations themselves, and the machinery manufacturers . . . These people are in good position to expand their programs and extend their efforts in the common cause."

Mr. Higgins states his view in straightforward language: "We believe there can be better integration between governmental and textile-industry research efforts. It would be desirable for the government to remove itself from applied research efforts and concentrate on basic investigations. Applied research should be conducted by those who must make the application: members of the industries themselves."

Says Mr. Werner: "This type of research and development work should be undertaken on a broad industry-wide basis, fully supported by textile manufacturers, cotton growers, and machine manufacturers and/or their respective trade associations. It would seem that an institution such as the Institute of Textile Technology could serve as an ideal vehicle through which to carry out such a program. It has already won the respect—and the financial support—of many leading textile organizations, and it is staffed, equipped, and oriented in a way that promises success in such an endeavor."

. . . *Turn the page*

Who'll Pay the Bill?

Some say the individual textile companies that dig into research must pay their own bills. Others suggest an industry fund. Still others feel the government should carry part of the load.

Take a run down the list:

Dean Gage says simply: "Industry must finance its own research. It can be done by corporations doing their own research, or by working through institutions of one kind or another."

Mr. Cone's view is somewhat different: "The cost in time and money of reaching an accord between fabrics and uses can best be paid by letting each major division of industry and government take its proper place in the line and carry its proper load. The federal government has adopted the responsibility for research at the agricultural level. The big chemical companies are paying for fiber research. The big textile verticals take their place in this production line—and they do it with their own technical staffs as well as with help to the institutes and the universities."

Says Mr. Werner: "Financing of such a research and development program has essentially to come from the textile mills. It should be possible to base financial support on the number of spindles or looms of the mills participating in the program, under the stewardship of the Institute of Textile Technology."

Dean Campbell would relate research-and-development expenditures to sales: "The paper industry has harvested great benefits from increasing its research and development expenditures from 0.1 to 0.4% of its sales. If the textile industry were to do this, say, in the next five years, the cost could approach $100-million a year. It seems to me that this would be quite feasible. After new programs once got under way, even greater scope would be needed. No one, at least not I, can say where it should go or where it should stop."

The views of Mr. Hance are understandably somewhat different. Here is his position:

"As to financing, each mill will have to participate in solving the problem overall. Where other agencies can assist, I feel the mills should call for that assistance—but should not attempt to shift the ultimate responsibility to someone else. An industry-owned research institution, such as the one I represent, can be and has been of tremendous help when advised by the industry.

"Because my institution is supported by voluntary contributors, I would naturally be opposed to a levy upon the whole industry by government to support such undertakings. The diverse nature of our industry requires that each tiny segment work toward achieving its part in this goal, for no one group can solve all of the problems for everybody . . . Countless small projects, different in some sense for each mill, . . . will be required. What may be beneficial to a print-cloth mill may have little application in a fancy mill or a mop-yarn mill. The general problems may be the same, but the approach and specific results would have to be quite different to provide the final answer."

Says Mr. Reeves: "The cost of research across the boards in our national economy now amounts to approximately 2½% of the gross national product value. It has risen from 0.1% some 25 years ago. The textile industry alone could not afford to devote such percentage of its sales volume to applied research —and even less to basic research. But such research is the only means to obtain the desired results, which will provide higher quality and lower prices for the consumer market—and, in turn, greater volume and better profits for the industry."

What's the Payoff?

It's a rich reward. That's the consensus of the men who answered this TEXTILE WORLD inquiry.

Says Mr. Werner: "Improved technology, the result of stepped-up research and development, will help solve the problem of competition from low-cost foreign labor. It will contribute superior and products more acceptable to our consuming public. It will improve working conditions and make them comparable to those in other industries. It will reduce labor and the cost of manufacturing."

Dean Campbell measures tomorrow's payoff in terms of achievements to date. For example, he points out that in 1920 it took 32-million spindles to provide yarn for 90-million people; today, 21-million spindles and 180-million people. And he says that the great Atlantic City and Greenville textile-machinery shows last year mirror a great acceleration in research and development and reflect a solid return on research investment.

Messrs. Cheatham and Bourdette also measure future promise by past rewards. They run down the list of recent achievements this way: Development of an opener-cleaner, an aerodynamic cleaner, and a finishing picker with installed cleaning and fiber-saving devices. Development of a way of carding without flats, the first radical change in carding in nearly 200 years. Development of wash-and-wear fabrics. And development of water- and oil-repellent fabrics and fabrics that resist rot, weather, fire, heat, and scorching.

Mr. Cone sees the payoff this way: "The result of supplying timely fiber, timely fabric, and timely style is a substantial and solid business activity. The finest incentive industry can have for doing research is a consumer demand for better quality—and our consumers today are demanding better textile fabrics."

Finally, Dean Gage again comes quickly to the point: "The results of research should make it possible to produce a better article more economically. This will broaden the market and increase the demand, thus increasing employment."

Technology Overseas

Cards Fed from Hoppers

A new machine developed in Japan (see TW, Jan. 1961, page 58) moves fiber direct from the bale and feeds a group of cards. Full bales go on the main conveyor, which uses endless pin-conveyors and parallel rows of rakes to take care of breaking, opening, mixing, and blending the fibers. Branch rake distributors take fiber from this main conveyor and fill tower hoppers for each card. These hoppers feed a condenser-hopper at the back of the card.

Spindle Runs on Oil Film

A new concept in high-speed spindles uses an extruded plastic spindle and forced lubrication. The Czechoslovakian inventor claims maximum stability with vibration- and noise-free operation, because the contact area between the spindle shaft and spindle is covered with a film of oil. Oil enters the bottom of the spindle shaft under pressure, moves to the contact area through holes at the top of the shaft, and flows down between the spindle and the shaft. Excess oil is collected and returned to the main reservoir for reuse.

Makes Fabrics by Sewing

A novel machine, developed in East Germany, takes warp and filling yarns, a sewing thread, and sews them into a fabric. The finished fabric, while it's neither woven nor knitted, looks like a knitted-looped structure. The inventor claims this machine produces fabric 30% cheaper than a woven fabric, while using low-strength yarn—warp from 2 to 3 grams, filling 12 grams, and sewing 120 grams. The machine makes fabric at a rate of 130 yards per hour, up to 27.3 inches wide. One 3.5-kw. motor drives the entire unit.

Heavy Dust Filtered Efficiently

A South African inventor has developed an electrostatic filter that has almost 100% efficiency, even in heavy dust. The unit uses a series of electrostatic filters with pre- and after-filters. Fine tungsten wire charges the dust particles, which are then deposited on tubes (of opposite polarity) spaced in banks. When the filter is turned off, the dust particles fall off the bars to collection tanks. Tests on asbestos dust feeding at 135 pounds an hour, with air velocity of 130 fpm. (fan inlet 6 inches), show efficiency of 99%.

Fiber Comes from Petroleum Waste

Russian research workers have developed a cheap way to make methylvinylpyridine from petroleum waste. The original use for this product was to improve the strength and frost resistance of synthetic rubber. But the researchers took a closer look at this monomer. The result is a new man-made fiber with ion-exchange properties—it absorbs ions from solutions. When made into a filter fabric and used to filter sea water, the cloth removes the salt. Milk filtered through the fabric becomes cottage cheese. The filter will also catch ions of valuable metals from solution of low concentration.

For more information on any item above, write Department KS, Textile World, 330 W. 42nd St., New York 36, N. Y.

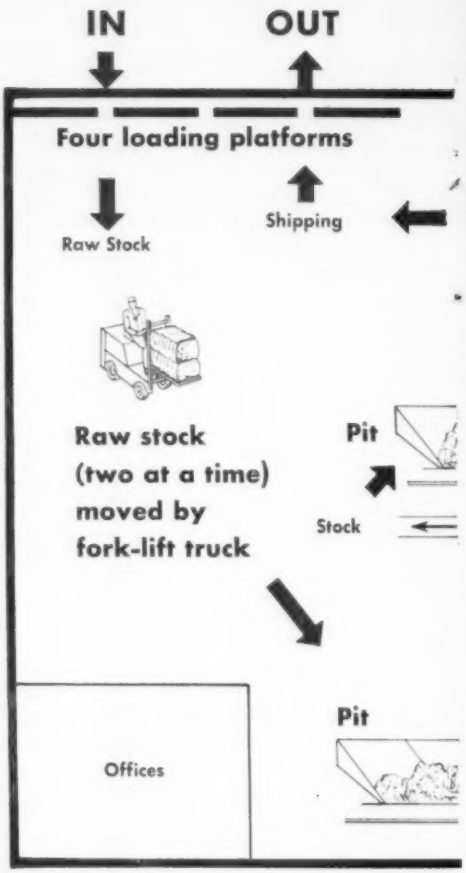
Material Handling Goes Automatic In this Spinning Mill

This company is taking a new approach to integrated machine layout and material handling. Result? Production-line operation from raw stock right through shipping.

NO MORE manual material handling. As far as is possible and consistent with economy, that's the way Firth Carpet Co. has designed its two latest mills. One mill, in Burnsville, N. C. (photo and diagram) makes wool carpet yarn. The second mill, in Laurens, S. C., weaves carpets (article coming next month).

At Burnsville, expert production planning, machine layout, modern machines, and automatic material handling show how productive a modern wool-yarn mill can be. This mill is about twice as productive as its conventional and older counterpart. Advantages are especially apparent on short-run yarn lots.

Burnsville's modern single-story, fully air-conditioned building is 300 feet wide and 600 feet long. It has just a shade under 200,000 square feet of usable floor space in its plant and offices.



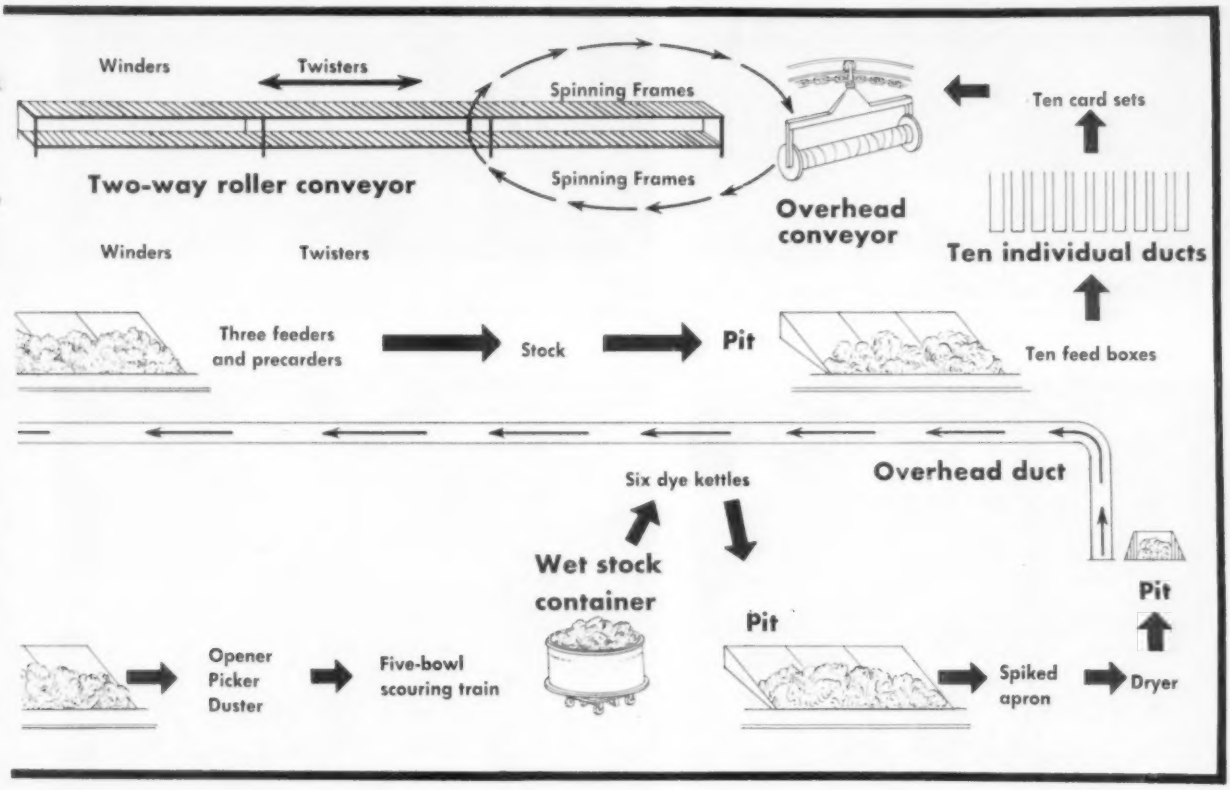
MODERN plant for spinning wool yarns from raw stock through finished yarn is at Burnsville, N. C., at the foot of Mount Mitchell.

Today the mill produces 150,000 pounds of ¾- to 1¾-run finished carpet yarn per three-shift, five-day week. But production facilities are flexible enough to process up to 290,000 pounds of wool stock at peak capacity to meet Firth's future expanded yarn demand.

Workers number about 200. Management men are: plant manager, dyeing superintendent (with an assistant on each of the second and third shifts), yarn superintendent (with two assistants for other shifts), and a lead man for each of the 10 yarn-production lines.

Quality first—Firth bases all machine production on quality rather than high production rates. This calls for frequent quality-control checks. For example, the mill takes vertical samples of every blend of stock and runs them on a sample

SMOOTH work flow is a result of machinery layout and material handling. Raw fibers enter the mill at one of four platforms, make a complete continuous circuit of the mill, and are shipped as finished carpet yarn at the same platform.



card through production spinning frames, twisters, and winders for color checking. Frequent tests of roving weights are made.

BETTER HANDLING

Fibers are stock dyed, or are bleached for white yarns. There's some manual handling of stock during opening, dyeing, and blending —but it's easy handling. For instance, stock for blending is dropped into pits rather than lifted.

For stock in process in carding and spinning, there's little manual handling. The handling is confined to removing material from machines and placing it on conveyors, which handle all horizontal movement of materials. There's no manual horizontal movement.

Equally modern in concept is Firth's waste-recovery system. It constantly feeds waste back to the automatic card feed as soon as it is made. This way, waste is all but eliminated. Furthermore, since accumulated waste isn't dumped into the card feed all at once, even-weight yarn is assured.

Firth's Puerto Rico plant was the guide in laying out the Burnsville plant. The two plants have the same type of machinery and material-handling methods. Both plants were designed by Russell R. Matthews, Firth's vice president.

Raw stock is received at one of four loading docks at the east side of the mill. Raw-stock storage is close by.

Handling in blending — Wool fibers used are Indian, Mid-Eastern, and South American virgin wool in approximate 4½-in. fiber length. These fibers are manufactured as blends of all-wool yarns. In addition, they're blended with man-made fibers such as rayon, Acrilan, and nylon.

When stock is to be processed, it is carried by fork truck two bales at a time to the west side of the building and is placed around a pit. Here the first of three blendings is done. As the operator needs stock for blending, he drops stock from the selected opened bales into the pit. One blend, for example, is wool fleece and wool fiber. This is a throwing job, and little lifting is required because the pit top is at floor level.

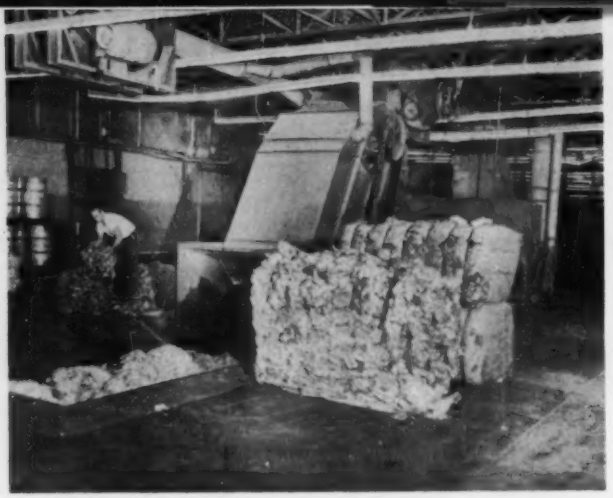
A feed table carries this stock into a Proctor & Schwartz wool opening unit with a picker and duster.

Controlled scouring—A James Hunter five-bowl scouring train is an integral part of this operation. Blended and cleaned stock is fed automatically into and through the five bowls.

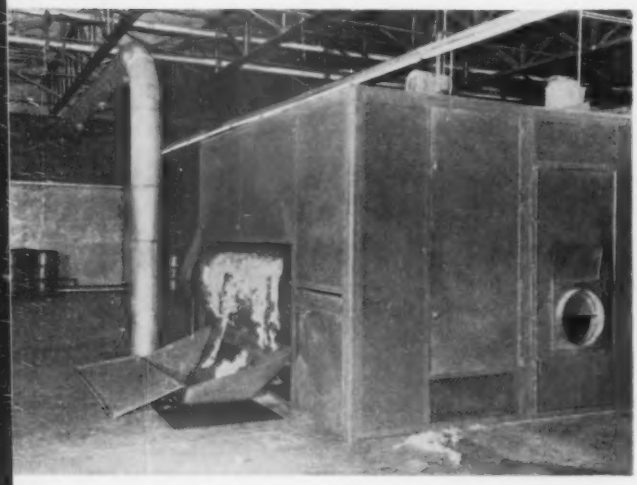
Scouring is completely automatic and is controlled from a panel board. Beginning at the bowl nearest the blending unit, the sequence is: No. 1 bowl, clear water; Nos. 2 and 3, a detergent; and Nos. 4 and 5, clear water for rinsing.

. . . Turn the page

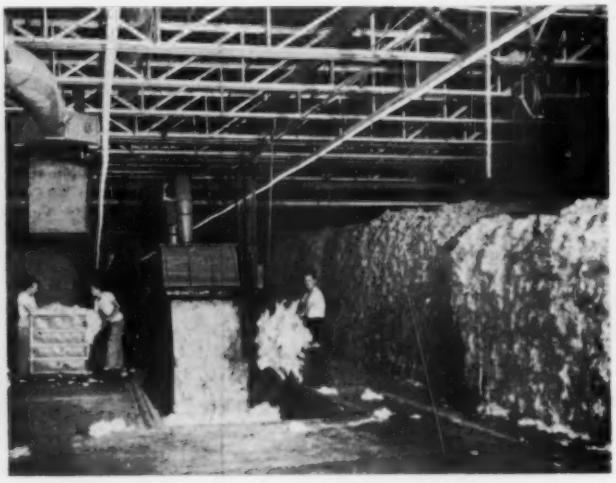
TWO at a time is the way 750-lb. bales of raw stock are handled. This storage area is near one shipping platform.



FIRST blending starts when the operator drops fibers into the pit, where a feed table carries stock into four machines.



DRYING dyed stock is the last process in the opening room and dyehouse sections of the mill.



SECOND blending begins where dyed stock drops from the overhead duct into the truck, from which it's stored in bins.

These 8 mechanized moves (6 more photos on the next

AUTOMATIC MATERIAL HANDLING

. . . *Begins on page* 52

Each bowl has three automatic dumps. Solution is pumped from the finishing end of the train backwards. The No. 5 bowl dumps every 2 minutes, and the No. 1 bowl dumps only every 2 hours.

Handling in dyeing—Wet scoured stock is fed into a special container designed at the mill—a cylinder with a false bottom set on dollies. Several of these containers, each holding 500 to 600 pounds of stock, are used. A full container is moved to one of six stainless-steel, high-pressure dye kettles only a few feet away, where the cylinder is removed as the stock is lowered into a kettle with a hoist. The stock is dyed with rigid controls for color matching against standards. Here again, automatic controls are used.

Dyed stock is removed by a hoist while it's still on the false bottom of the cylinder and is transported by a monorail to a second feed pit nearby. The stock is dumped into this pit and fed to a spiked apron. Then it goes through squeeze rolls and a feed table into a Proctor & Schwartz dryer with three separate drying areas, each of which has individual temperature controls.

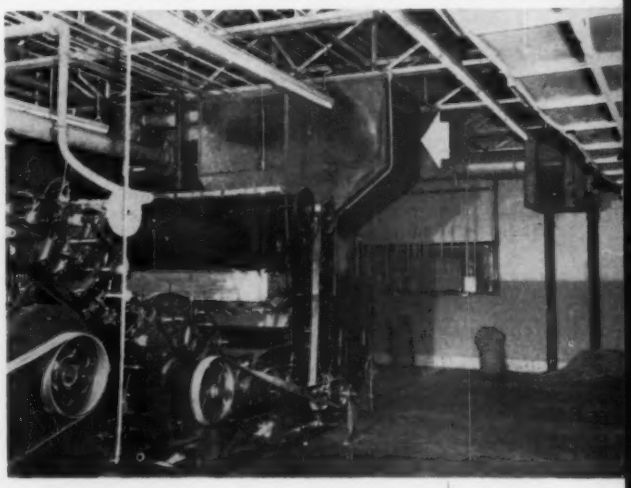
Handling with air—From the dryer, the stock is blown pneumatically to the blending room. At this point, there's some manual handling. Plant Manager Ted C. Ballou says hand feeding here results in better blends. Therefore stock is removed from the pneumatic pipe into boxes. Then it's sandwich-stored in bins.

After a sample of this stock is approved, the sandwich-stored stock is cut vertically and is fed into pits for a second blending process—three lines of Bramwell feeders with Schofield precarders. Pneumatic pipes unload this stock again in lays in bins. Fibers like Acrilan go through an extra chute to bypass precarding.

UNIQUE container receives the wet scoured stock as it comes from the last bowl of the scouring train.

DYED STOCK is dropped from the false-bottom container into a second pit. Feed apron carries the wet stock to a spiked apron.

THIRD blending at 10 feeders in a pit starts an uninterrupted movement that extends throughout all processes and shipping.



AUTOMATIC card feed is beginning of one of 10 production lines. Bin (arrow) is head of waste-recovery unit.

two pages) are tops in material handling for textiles.

Again, stock is thrown into a pit, for the third and final blending. Stock is cut vertically. In this pit, there are 10 Bramwell feeders.

ALL-OUT AUTOMATIC

Here the Burnsville plant starts its real automatic handling system—stock automatically removed from machines or put on machines, but never moved horizontally by hand.

Each of the 10 feed boxes is connected by a pneumatic duct with one of 10 84-in. wool card sets in the production area. When the stock in the automatic card feed reaches a predetermined low level, a Micro switch starts the Bramwell feeder for that card. The feeder runs until the card reaches the correct level. Then a second limit switch stops the feeder.

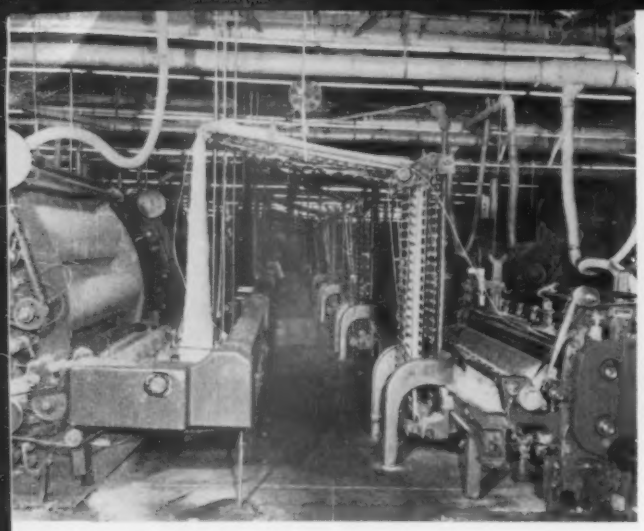
Ten parallel lines—The production area is laid out into 10 parallel production lines running lengthwise of the room. In each line machines are in tandem: wool card set, two spinning frames, one or two twister frames, and two winders. Stock started through the card stays in the same line all the way through winding. No crossing over.

The Whitin Model M wool cards are 84 inches wide, two cylinders per set. A card consists of the following Whitin equipment: automatic card feed, breast, breaker card, R conveyor, N intermediate feed table, finisher card, and double rub condenser. The units also have a burr-crushing attachment, an antifriction comb box, centralized lubrication, and a vacuum stripper.

TANDEM OPERATIONS

The Whitin tape condensers take off 120 good ends on 7½-in.-dia. spool drums. Eight spools of 15 ends each are doffed. Weight is checked at each doff. Average weight is 15 pounds, but weight varies by fibers processed. Roving weights vary from 180 grains to 400 grains per 50 yards with spool-drum speeds of 45 to 65 rpm.

Directly in tandem with each card are two Whitin Model E wool spinning frames processing only the



INTERMEDIATE feeds and overhead conveyors between breaker card and finisher card are the first movement of sliver.

OVERHEAD conveyor transports 15-lb. spools from condenser front to two spinning frames in the same production line.

DOUBLE CONVEYORS at twisters carry full and empty bobbins to and from spinning frames and to and from winders.

CONVEYORS at winders travel in two directions: backward to twisters, and forward to the shipping area.

AUTOMATIC MATERIAL HANDLING

. . . *Begins on page* 52

stock from the card in the line. Spinning frames have 150 spindles, 12-in. traverse, 7-in. gage, with 5½-in. straight-wall bevel-top vertical rings. Spindles on 20 frames total 3,000. Rings are lubricated by an electrically controlled pump from each head end. All frames have predetermined yardage counters.

Depending on the yarn numbers of a ¾ to 1¾ run and a twist of 3 to 5 tpi., net weight of bobbins is 12 to 16 ounces.

Front-roll speed ranges from 175 to 196 rpm.; spindle speed, ranges from 2,700 to 3,500 rpm.—depending on yarn size.

Machine layout is ideal for spinners because each spinner can tend 150 spindles with ease.

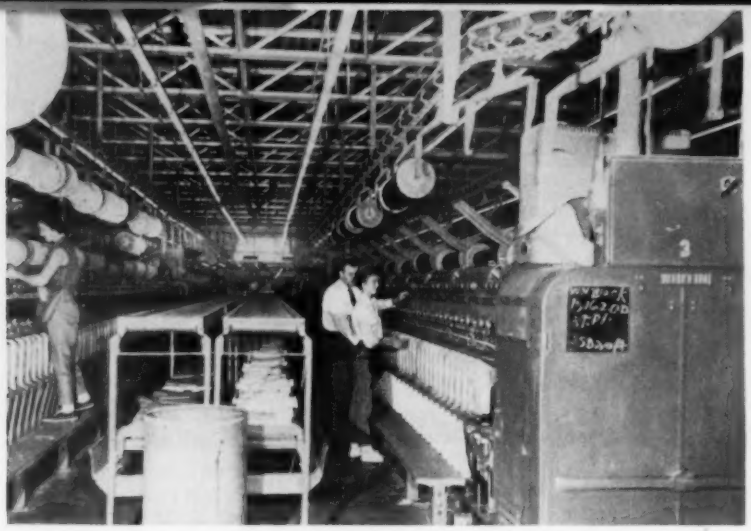
TWISTERS AT WORK

There are 15 Whitin Model K Trap twisters. Five production lines have only one twister. But five lines have two twisters. The lines with two twisters are used for high-twist yarn. Twisters have 120 spindles, 10¼-in. traverse, 8-in. gage, and 6½-in. straight-wall bevel-top vertical rings. Rings have automatic lubrication. Maximum flexibility is provided by reverse twist and independent twist gearing on each side of the twisters.

The trap or yarn stop motion stops yarn delivery and spindle simultaneously when an end breaks or runs out. Yarn delivery and bobbin also start simultaneously to insure full twist insertion and optimum yarn quality. The trap motion controls up to six ends. When yarn breaks between the delivery rolls and bobbins, a ply trap also functions in the same way.

Creels are sloping-table types, with four creel spindles per twister spindle. They're set up for over-end draw with a tension device.

Twister spindles operate at 2,500



TWO CONVEYOR systems serve spinning frames. Spools of sliver are overhead. Roll tables in alley take doffed bobbins to twister.

END OF LINE is this shipping area, where yarn is weighed and packaged for immediate shipment. The entire production line is almost 600 feet.

to 3,000 rpm. Front-roll speed is 30 to 40 rpm. Turns per inch vary from 1.0 to 8.50. Net weight of yarn on the bobbin is 2.5 to 3.0 pounds.

WINDING MADE FLEXIBLE

Each production line has two five-spindle Foster No. 78 cone winders, for a total of 10 spindles per line. Over-all total for the mill is 100 winder spindles.

Firth does some skein winding, but only intermittently. It has converted four Johnson & Bassett winders to portable units. These winders can be moved to the end of each Foster winder so they become an integral part of the production line.

NO-HANDS HANDLING

From the beginning of each production line to the end, stock is moved forward automatically.

The carder places the spools on an endless overhead conveyor as he doffs them from the tape condenser. The monorail encircles the two spinning frames in the line. The conveyor runs continuously. Spinners remove the spools as they're needed, and empty spools are returned by the same system.

By each side of each spinning frame there's a double-deck conveyor that extends down each side of the twister frames in the same line. As bobbins of filling are doffed at spinning, they're placed in a tray on the top deck of the conveyor. Empty bobbins are returned from twisters to spinning by the lower deck of the conveyor.

In this same way, full yarn bobbins and empty bobbins are transported between twisters and winders by another conveyor.

A third conveyor, which has an endless belt, carries wound cones of yarn from the winders to the shipping area. Here each lot of yarn is set on the floor in rows so that the entire lot can be inspected at once. Then the cones of yarn are put into burlap bags and placed on pallets for shipping.

At this time the raw stock in process has made a complete circuit of the mill and is now back at the point of entrance ready to be shipped as finished carpet yarn.

WASTE RECOVERED

Firth's automatic built-in waste-recovery system is also an important part of the production line. Over the automatic feed of each card there's a funnel-type waste bin. A vacuum waste-removal system extends from this bin to the vacuum card stripper and to the condenser. Waste is returned to the card feed through the bin. Extra ends at the condenser are returned along with card strips.

Spinning frames have a pneumatic waste-removal system (Pneumafil). This system also ties in with the bin at the automatic feed at the card.

Waste removed by hand from condenser spools, like all other waste in the production line, is placed in the waste system manually so that it returns to the card feed.

The result: no accumulation of waste that has to be rehandled. More important, the small amount of waste being collected throughout the day is returned to the new stock as soon as it's made. Therefore with no lumping of waste in one big wad, over-all yarn uniformity is improved. In addition, there's no dirty waste.

To prevent mixed yarn and waste, spinning bobbins and twister spools are color-coded for each line. Baked-on enamel in green, blue, white, black, and other colors, identifies each package conspicuously and accurately.

ORDERS come in here, where Production Controller Gerald Malboeuf makes entries. Sched-U-Graph lists all orders.

PRODUCTION cards get careful review from General Overseer Rene Bourdeaud-'Hui before he gives them to overseers.

RECORD of yarn lot moves on to drawing, where all data pertaining to this operation is recorded.

Controlling 375 Orders—All at Once

This new system cuts paperwork 75%, improves quality, and reduces delivery time on worsted orders. What's more, it's smooth as clockwork.

THE PHOTOS and control forms you see on these pages tell the story of a new production-control system. It's a system that produces all production-process paperwork at one time, saves 75% on paperwork. And it's no flash-in-the-pan scheme, either. It's been at work since mid-1959 for Argonne Worsted Spinning Co. (Manville, R. I.).

By ARTHUR J. GAGNON, JR., Supervisor of Quality Control and Job Evaluation, Argonne Worsted Company, Manville, R. I.

Argonne adds up gains from the system like this:

- One-man scheduling for all orders.
- Glance-level appraisal of the stocks of every order, every lot.
- Exact cost analysis and quality control.
- Better quality yarn.
- A 50% cut in delivery schedules.
- Elimination of late orders.

Key to Argonne's system is a 5x8 card (see illustration, below). Nine of these cards cover each order. They list all the necessary production information.

FRONT SIDE of master card lists complete data for production, quality control, and cost evaluation.

ORDER NO. LOT NO. COUNT

NAME CUST. NO.

ADDRESS

COUNT QUALITY

SHADE LBS.

PUT UP STEAM

TWIST - SINGLE PLY

PREVIOUS LOT STANDARD LOT

REMARKS

SHIP TO

VIA

ORDER NO. LOT NO.

YARN

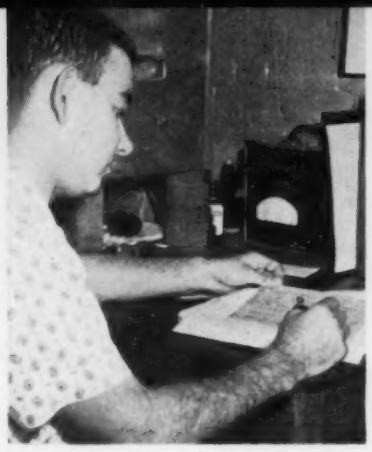
CUST. LBS.

PRODUCTION SCHEDULE

DEPT.	SCHEDULE	ACTUAL
TOP		
DYEING		
DRAWING		
SPINNING		
TWISTING		
WINDING		
SHIPPING		

ORDER NO. CUSTOMER LOT NO. DESCRIPTION QUANTITY DEL. ST. RATE SERIES

FLOW CARD for spinning is reviewed by second hand with spinning frame operator for processing of a special lot.



CROSS CHECK: Production data is compared with quality-control data, an important factor in upgrading quality.

BIG BOARD keeps track of orders. When customer inquires about order, clerk reads off information on board.

Here's how the paperwork flows. The process manager (photo, upper left) receives the order, makes out a work sheet, has the nine cards reproduced, puts the master card on the board (called a Sched-U-Graph), and follows the lot on this board as the goods go through the plant. Any one in management can see the exact status of an order just by glancing at the board. Sounds interesting. But that isn't all.

The company gained two additional benefits—cost analysis and quality control for every lot (order). The back of the control cards has subheads where each supervisor lists the production data for his department. From this information the quality-control supervisor determines the cost of each production process. And he also checks his quality-control figures (collected separately) against each supervisor's information.

Result: Improved yarn quality, better cost analysis, and increased output. With the production flow increased, the company reduced its delivery schedule 50%. Now, late deliveries are practically a thing of the past.

TWO-PLANT OPERATION

Argonne (whose two plants are located 310 miles apart) makes worsted and worsted-blend sales yarn. Lincoln Process Co. at Manville, R. I., produces 12s to 80s two-ply yarn. This is a small plant that the company modernized and expanded. Output averages 5,000 pounds each week and the lots (orders) average 1,000 pounds.

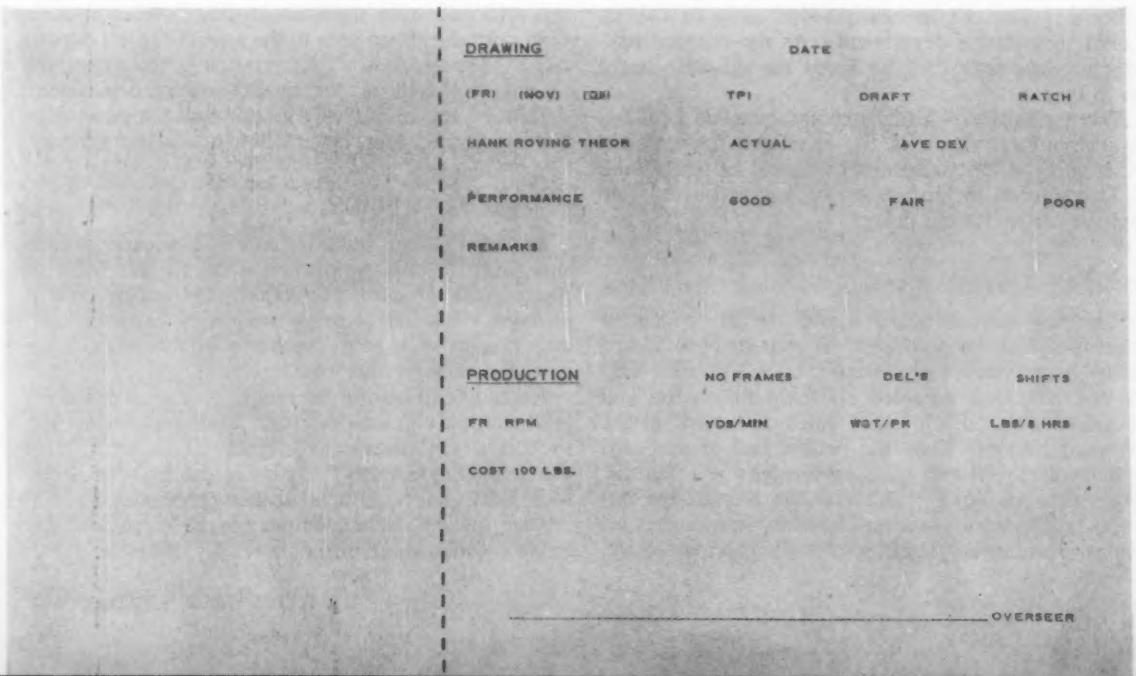
Ellsworth Process Co., at Ellsworth, Me., runs 12s to 60s, two-ply worsted yarn. This plant is new. Argonne built it five years ago. Here production averages 35,000 pounds each week and the average lot is 3,000 pounds.

Management controls both units from the main office at Manville, R. I. (alongside the Lincoln plant). The wool buyer, quality-control manager, and production process manager are located at Manville.

All in all, it adds up to a complicated production system. But not unmanageable.

. . . *Turn the page*

BACK SIDE lists data from spinning, drawing, or other department. Card for data on drawing looks like this.



VISUAL PRODUCTION CONTROL

Argonne needed an inexpensive system to control its yarn production. After investigating various record systems the management chose the Remington-Rand Sched-U-Graph. This schedule board holds a 5x8-in. control card for each order in process. This is the master or visual flow control list.

But the process manager needs nine cards for each lot. Argonne made this easy. All data printed on the face of the nine cards is printed at one time. A typist takes the order worksheet, makes a duplicating master, and prints nine color-coded cards. Here is a list of the cards and where they are used:

Card Name	Color	Where it goes
1. Sched-U-Graph	White	Control board
2. Top	Gray	Wool buyer
3. Dyehouse	Yellow	Commercial dyer
4. Drawing	Pink	Drawing supervisor
5. Spinning	Blue	Spinning supervisor
6. Twisting	Salmon	Twisting supervisor
7. Winding, Spooling, Reeling	Green	Winding supervisor
8. Shipping	Tan	Shipping supervisor
9. Lab	Orange	Quality control

The faces of the cards are identical (see illustration on page 58). But Argonne has printed special headings on the back so that the department supervisors can list production information pertinent to each plant operation.

SUPERVISORS GATHER DATA

The department supervisors fill in the back of each card as the lot is processed. Argonne perforates the flow cards. As the yarn lot leaves the department, the larger 5x5 portion (including the production data) is forwarded to the quality-control manager. The smaller 3x5 portion (which lists the production schedule on the front) moves to production process manager. Each supervisor fills out the card when 25% of the lot passes through the department. As the process manager receives each card he keeps the schedule board up to date.

When a particular lot falls behind schedule a follow-up determines why. If the scheduler finds that a lot is going to be considerably delayed, he reschedules it, then informs the customer of the new delivery date and the reason for the delay.

ORDERS LISTED FAST

The flow control board is the key to production scheduling and order position. It consists of four card holder boards, two each, fastened back to back. This pair of boards is mounted on the wall on top and bottom swivels. Each board holds 100 cards in the left-hand column. Only the bottom line of this card is immediately visible (full card is visible when the hinge flaps are lifted). But this line lists all the important information—order number, customer, lot number, producing plant, yarn description, quantity, and delivery date. The remaining portion of each board to the right of the card is divided into four major vertical columns for the months of the year. And each major column is again divided into small columns for each day of the month.

Argonne keeps one side of the board reserved for special production records. This includes orders for which the customer requests partial or delayed deliveries plus a running inventory of the tops and yarn stocks. These records help in forecasting and planning future production.

VISUAL AID—COLOR

Control cards are grouped by consecutive order numbers, which makes for easy location of any order. When the scheduler puts a new order on the board, he color codes the vertical column (same color as the department cards) to indicate which days of the month the order passes through each production department. When the process manager receives the completed 3x5 (perforated tab) he immediately records on the board the exact day this order left each department. This is indicated by a small transparent colored tab (which corresponds to the color of each department card) placed over the day of the month.

From this one board production-flow information is available for each order in process. Queries from customers or management can be answered immediately. In addition, once a week a summary of delivery status, prepared from the board, goes to all interested personnel.

QUALITY CONTROL

Quality-control procedures have been dove-tailed into the flow-control program. A random-sample program evaluates each lot of yarn at every stage of manufacturing. This is prepared by the quality-control department. But, as noted earlier, each department supervisor tests and evaluates yarn lots. He records this information on the back of the flow-control cards (5x5 portion), which goes to the quality-control department. The supervisor's information is the same type of data collected by the quality-control department. And if the test results vary greatly between production and quality, an immediate follow-up determines why.

PRODUCTION FLOW

In addition to quality-control information, each supervisor records production data on the back of his specification card. From this, the quality control manager calculates accurate production costs for each lot. If costs vary, from previously established average cost, the manager investigates immediately.

In addition, quality control uses the supervisor's information for process-flow and job-evaluation studies. Process flow is important in yarn production. Individual operations may be running at high efficiency with good quality. But a further check may show a relative low production output on the machine. Argonne's system makes this data readily available.

From This Big Fire, a New Start

Here's how a small company got back into business fast after a nearly ruinous fire—how it wound up with equipment that's efficient, low-cost, and up-to-date.

THIS STORY is about a company that took a new start after a ruinous fire—and about the equipment, salvaged and new, that put it back in business. It's the story of the Lincolnton (N. C.) plant of Long Shoals Cotton Mills, Inc.

Today, from the outside, this mill looks like most other small spinning mills in the Lincolnton area. But inside, it's different. Under the same roof with typical American-made cards, coilers, comb boxes, warpers, and twisters and a brand-new American-made spooler, you'll see long rows of Japanese OM-S sliver-spinning frames backed up by O-M drawing frames. This mill is the first in the United States to be completely outfitted with Japanese spinning equipment.

How do the operators of this mill feel about their equipment from overseas? They say: "It's well made, efficient, and good running. We're getting excellent quality yarn. And we're saving labor by eliminating the roving process."

Who are these operators? They are D. H. (Buck) Mauney, vice president and manager; his brother W. A. (Bill) Mauney, secretary and treasurer; and C. E. Neisler, Jr., president.

Buck and Bill Mauney represent a family that has been running textile mills successfully in North Carolina since the 1890's. Veterans themselves in the business, they had a nice spinning operation at Long Shoals (near Lincolnton, N. C.) that hadn't curtailed in 65 years until one day in the spring of 1959. That day their mill burned down. Overnight they were out of business—and their 175 employees were out of jobs.

Stop-gap move — The Mauney

A NEW START

. . . *Begins on page* 61

brothers were dismayed, but they didn't give up easily. They quickly took stock of what was left. It wasn't much, but it was something —maybe enough to get them back in business one way or another. And they had a nice sheaf of unfilled orders.

Fortunately there were a few good spinning frames undamaged after the fire. The picker room was still usable. The Mauney brother salvaged a few cards and bought some second-hand drawing and roving frames. Within a month they had thrown together a little mill (3,640 spindles) that could turn out 20,000 pounds of yarn a week. This unit, located in the undamaged cotton warehouse, is still operating and going strong on Coloray rayon yarn.

THE BIG DECISION

Getting the little plant into operation was only a stop-gap effort. What were they going to do about their real business lying there in ashes? Collect their insurance and go into something else? Or stay in the textile business? They thought about their employees, their stockholders, and themselves—and stayed.

Rebuilding looked pretty hopeless. And what was left of the old plant was a mess. Further, it was hemmed in by a river on one side and a railway on the other—no room for future expansion. And at this point they had no idea how much money would be available to rebuild and equip what amounted to a new mill.

Building bought—Luck was on their side. About this time—a month after the fire—the old Massapoag mill, in the outskirts of Lincolnton, came on the market. The Mauneys bought the building and 40 acres of land for $175,000. The deal included a boiler plant and sprinkler system in good condition. All they had to do to the building was knock out some partitions, repaint the inside, and refinish the floor.

Purchase of the building was a real break. But there were still problems to face. The big one was arriving at the amount of the loss and getting a settlement from the insurance company. After some six months of appraisal and negotiation, the Long Shoals officials agreed to accept a settlement of $611,000. This figure, according to Buck Mauney, represents about one-third of the replacement value and one-half of the actual value of the burned plant and equipment.

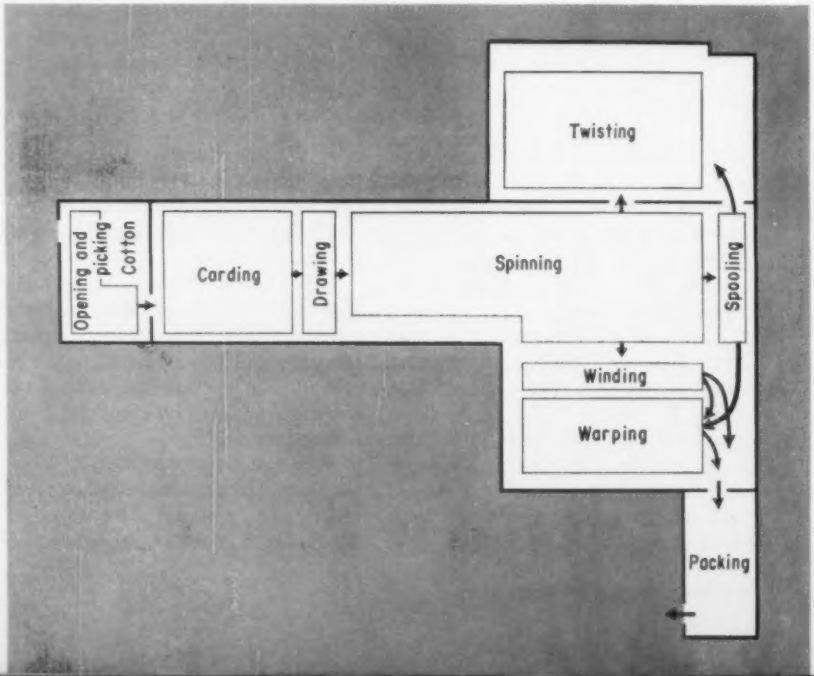
SPINNING frames are new. Twenty-four of them are now producing about 45,000 pounds of yarn per week. Added: vacuum and collector, traveling cleaners.

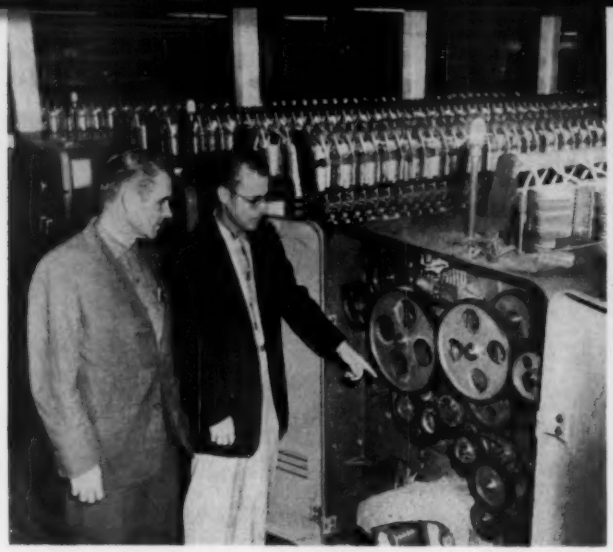
Equipment selected—The next big step was to decide what type of new equipment to install and how much of the old equipment could be salvaged and refurbished.

Management selected Japanese spinning and drawing equipment (O-M Ltd., Osaka). All other machinery in the mill today is American—either new or rebuilt. A new Model FF Barber-Colman spooler has been added, and opening and picking equipment was recovered practically undamaged from the fire. Other salvaged units were rebuilt.

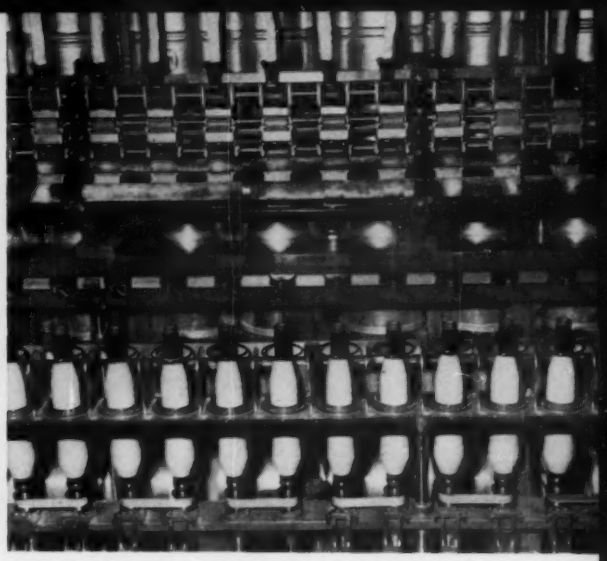
During the period between the purchase of the Massapoag plant and installation of the new machinery, Buck Mauney, wanting to give work to as many of his old employees as he could, organized a special crew of about 25 men. He put them

PRODUCTION FLOW and machine layout at Long Shoals are streamlined, just as in many mills built today. Present building is an old one now updated.





GEARING on the head end of the spinning frame is examined by owners Buck and Bill Mauney.

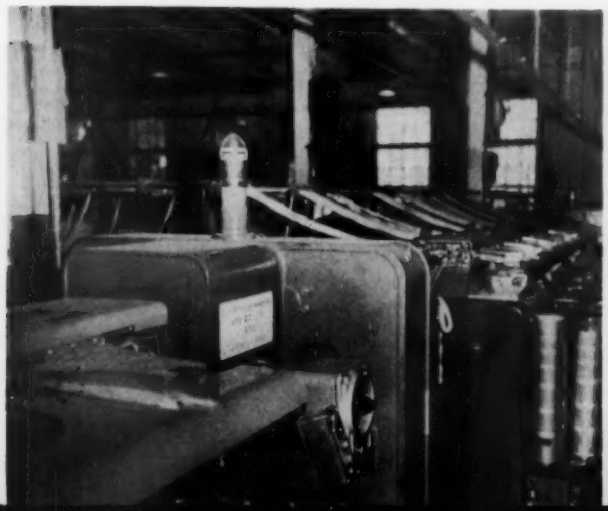


DRAFTING system, with five rolls, combines roving and spinning into one operation.

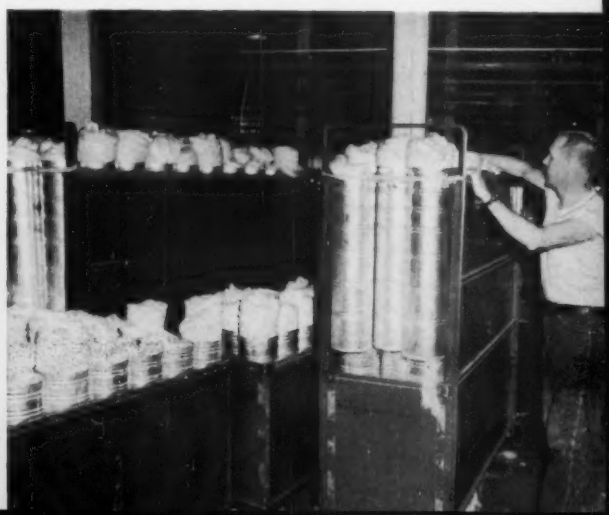
CREELING looks awkward but actually is no more difficult than the conventional method.

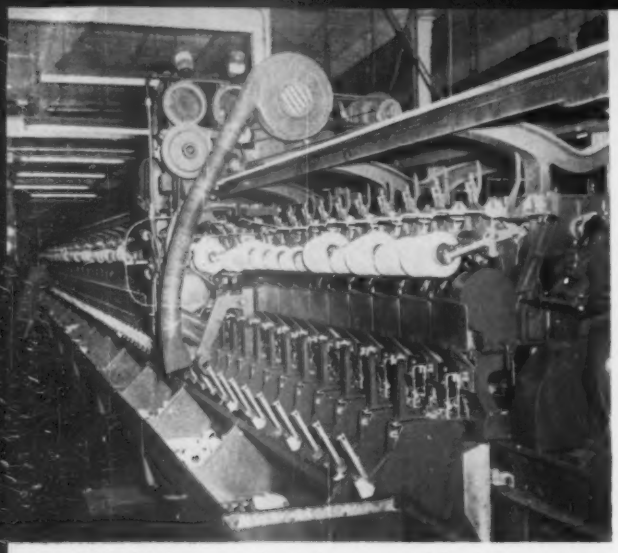
DRAWING frame has four-can turntable and automatic push-button controls. Each can holds 3½ pounds of sliver.

SIGNAL on drawing frame has three colors—red, amber, green. Colors tell operator how frame is running.



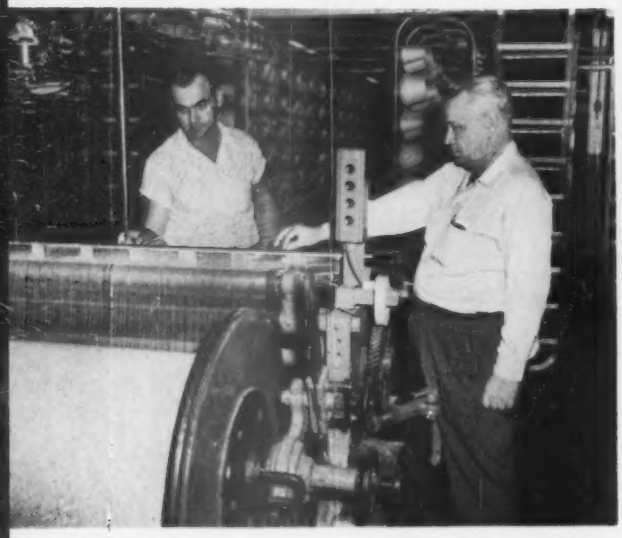
SLIVER cans are hauled in trucks and stored at the end of each spinning frame.





SPOOLER is new, makes 4-lb. cones or 6-lb. cheeses.

TWISTER is checked by Time-Study Chief John Floyd (left).



WARPERS were rebuilt after the fire. Speeds average 350 rpm.

CONES and dye tubes are made on four rebuilt winders.

A NEW START . . . *Begins on page* 61

to work refurbishing the Massapoag plant and cleaning up and repairing usable machinery from Long Shoals. About the same number of operators went to work in the newly organized Long Shoals plant. The other displaced workers soon found work in neighboring plants.

Loss of half his trained labor force, especially spinners, has given Buck Mauney some headaches. But he is rapidly building up and training a new and efficient group of operators. "Good spinners are hard to find," he says, "and some of them you have to pet a bit when they take a first look at our new and 'strange' machinery. But most of them soon learn to like it."

WHAT THE MILL COST

Here's a rough over-all estimate of what it cost Buck and Bill Mauney to get back in business, not counting the Long Shoals yarn mill:

Building and land	$175,000
Spinning and drawing (new)	450,000
Spooler (new)	75,000
Cards (rebuilding)	50,000
Refurbishing (plant and other machinery)	50,000
Working capital (bank loan)	250,000
Total	$1,050,000

The Mauneys eased this burden somewhat by leasing $220,000 worth of the Japanese equipment. They borrowed the $250,000 working capital from a New York factor.

Cost of the 24 spinning frames (8,640 spindles) plus 4 eight-delivery O-M drawing frames, extras (motors, cleaners, antiballoon rings, spindles, and knee brakes), accessories (sliver cans, bobbins, aprons, cots, tapes, etc.), spare parts, insurance, freight, and duty brought the total to $52 per spindle, not counting cost of erection based on an anticipated average yarn number of 16s.

Accessories include 10,600 aluminum sliver cans—about 24% more than needed for the present yarn range and number of spindles. But management thought it wise to

include these in case the mill suddenly changed to other numbers requiring more cans.

Long Shoals' order called for shipment from Japan at the end of January, 1960. The equipment arrived on March 21, 1960. The first frame went into operation on April 6. All frames were erected and in operation by the middle of August.

Spinning—The spinning frames are 3½-in. gage and have 360 spindles each, 2½-in. rings, 10-in. traverse, 11-in. bobbins, and a 5-roll drafting system. The drafting system is in effect two Casablancas systems in tandem, with the front roll of the roving section serving as the back roll of the spinning section. Rolls are set at the factory for maximum fiber length.

An automatic starting clutch permits the spindles to start a moment ahead of the drafting rolls so that slack is removed from the yarn. A preset yardage-counting mechanism stops the frame on the downstroke of the ring rail and turns on a light to notify the doffer that the bobbins are full. Other features include a one-shot lubrication system and a two-fan vacuum end collector. American MonoRail traveling cleaners are used over the frames.

Drawing—The four drawing frames that supply the spinning frames with sliver are conventional O-M models that run from 120 to 130 fpm. A high-speed O-M machine is available, but Long Shoals doesn't need more production now.

These drawing frames feature a four-can automatic turntable under each coiler head. Up to three cans can be doffed without stopping the frame. Each can measures 6⅜ x 26 inches inside. The drawing frame can easily be modified to handle 6-ft. cans if the need arises, and the automatic can changer can be adapted to any type of drawing frame.

A red blinker light at the head end of the machine indicates time to change cans. A steady red light indicates a stoppage at the head end of the machine. An amber light signals a stoppage at the back end of the machine. And a green light means that the front stop motion has been activated. Other features include a preset yardage counter that resets itself when the frame is doffed. No gear change is necessary.

HOW THE MILL OPERATES

Long Shoals today is producing about 45,000 pounds of 12s to 24s plied weaving yarn (sales) per week. Full capacity is about 50,000 pounds per week, and average annual sales now are $2.5-million.

Opening—Machines from the Long Shoals plant have been overhauled and modified. Five openers have been equipped with ball bearings, new aprons, and Sargent combs. Attached to each opener is a Junior Superior cleaner. From here, the cotton passes over a feed table to two Superior cleaners that have been equipped with new adjustable-pitch grid bars for better cleaning. No condensers are used in the entire line.

Stock is treated with Lutex additive through a special nozzle in the cleaning line to keep down fly and prevent waste from accumulating on the card screen. Results are excellent. Fly and waste stay down.

Cotton used is $1\frac{1}{32}$-in. SLM, and 30 bales are laid down. Plans are to increase the lay-down to 50 bales in the future. Stock from the cleaning line is fed by means of a reversing apron to two Kitson one-process pickers that have three beaters.

A 14-oz., 52-lb. lap is made at the pickers. Enough stock is processed in two shifts (five days) to supply present requirements. One man per shift runs the entire opening and picking department.

Carding—The 40 cards now in use were badly damaged in the fire at Long Shoals. Cost of the repair was approximately $1,000 per card. In the process of repair, Hollingsworth metallic clothing, 18x42 Saco-Lowell coilers, and Southern States comb boxes were added and new bearings and flexible bends were installed on the machines.

A 60-grain card sliver is made at 11 pounds per hour. One man per shift runs all 40 cards.

Drawing—The drawing frames also produce a 60-grain sliver, six ends up and with a draft of six. Speed is set at 126 fpm. for Long Shoals' entire range of yarn numbers—a good speed for all.

About 3½ pounds of sliver is put in each can every 10 minutes. More could be packed in, but there is no production incentive to overfill the cans and run the risk of tangling. One man per shift runs all 32 deliveries of drawing.

"One big advantage of this type of drawing and spinning (which eliminates the roving process) is that the direction of fibers is not changed," says Superintendent Jolly. "Not only does the roving process change direction of the fiber hooks. But the whirling motion of the flyer places a lot of fibers crosswise and causes hairy roving."

Spinning 24s yarn, the frames have a front-roll speed of 152 rpm., spindle speed 10,000 rpm., twist multiplier 4.70, and draft 172. Break factor averages 2,000. Ends down range from 30 to 40 per thousand spindle hours.

Spinners do all cleaning and creeling. Rolls are picked about every two weeks. The drafting system takes a little longer to clean than conventional systems because there are two systems (roving and spinning) combined in one.

Work assignments—They are still being studied and are subject to change. Today's labor force in the spinning room consists of six spinners and two doffers per shift. "We don't want to settle on an arbitrary work assignment until we are completely sure of the capabilities of the machines and operators," says Mauney. "Also we want to get the machines up to full efficiency (95% or better) before making any operator changes."

From spinning, yarn goes to the new 220-spindle Barber-Colman Model FF spooler where 4-lb. packages are made at 12,000 yards per minute. Here, 4-deg. pigtail cones are made to supply the warper. This spooler can make 6-lb. cheeses if needed. Two operators per shift run the spooler.

Warping is done on a Cocker ball warper and beam-warper. Each runs about 350 yards per minute. The beam warper has a variable-speed drive that can be adjusted for different kinds of yarn. Two operators per shift run this department.

Two-ply yarn is made on 24 Saco-Lowell twisters that have 3½- and 2¼-in. rings. Average spindle speed is 7,200 rpm. Four operators per shift run this department.

Cones, dye tubes, and other packages of this type are made on three Roto-Coners and one Foster 102 winder.

Managing for Better Quality

Alabama Textile Operating Executives heard of widespread improvement in cotton nep reduction and in spinning-frame maintenance at their recent meeting. Conclusion: Broad progress followed by big gains in yarn quality.

FEWER NEPS and improved maintenance. These were the highlights as members of the Alabama Textile Operated Executives met recently at Auburn (Ala.) University. Supervisory representatives of mills boasting a total of a million spindles focused their attention on metallic card clothing, heavier card sliver, and maintenance (see checklist).

BETTER CARDING

You'll find at least 1,000 cards covered with metallic clothing in Alabama today. Some of the clothing has been running 10 years. Other mills are just now getting into the picture. Conclusion: Newer fine-tooth clothing seems to produce better results than the old clothing.

Nep count—down as much as 75%, in cotton ranging from ⅞ to 1⅛ inch in staple length. Most grades SLM to M. Sliver ranges from 50 to 70 grains; average, about 60. One mill reports nep count dropped from 25 to 15. Other counts are generally higher. Mill men say nep count gradually goes up as the wire becomes worn, but it still runs less than for similar-age fillet clothing.

Nearly all mills use metallic clothing on both cylinder and doffer, and they bolt down feed rolls. Also, they use new and reworked journals. They keep grinding to a minimum, too. Most mill men say grinding is done only when damage occurs. In many instances, cards have been running for years without grinding. When grinding does become necessary, a pumice stone is usually used.

About half the mills report no maintenance problems to date. But some have had trouble. Here are some of the complaints heard:

Web running over doffer and pushing bottom front plate into cylinder . . . jerk-in laps, chokes, and fly blowing out . . . chokes in screens and wall of doffer . . . added weight causing greater wear on bearings . . . damaged clothing hard to replace . . . chokes heat up cylinder and cause it to rub on doffer.

Cards are typically stripped once a week. Brush stripping is the common method used. One mill strips every eight hours. Cleaning schedules vary somewhat—mopping at eight to 24 hour intervals, for example.

About half the mills have a reduction in flat strips ranging up to 50%. A few mills say there is no reduction. One mill claims an increase of 2.8%. Sliver evenness is better in nearly every instance—as much as 50% better in some.

A few mills have a substantial production increase—in one instance from 13.5 to 16 pounds per hour. But the majority are running the same poundage per hour. Increased efficiency accounts for minor production increases. Reduction in personnel (grinders and strippers)

Scheduling Your Maintenance—

One highlight of the recent Alabama TOE meeting was the presentation of the following checklist that spells out what the modern mill should be doing to maintain its equipment in prime shape.

PICKERS

Every four weeks, picker fixers . . .

1. Run out cotton and clean completely.
2. Remove gear covers, clean and oil (or grease) all gears where required.
3. Check beaters and turn or replace.
4. Check for worn gears and other worn parts.

Every six months, picker overhaulers . . .

1. Check beaters and turn or replace.
2. Check bearings, rolls, and gears.
3. Check aprons, beaters, and grid bars.
4. Set beaters and clean evener motion.
5. Check calender section completely.

CARDS

Every 13 days, card grinders . . .

1. Clean, oil, and grease card completely.
2. Clean and set all gears, brushes, and combs.
3. Check all belts and tighten or replace them.
4. Clean flats if needed. Set them (every 26 days).
5. Keep clearers covered and oil holes clean.
6. Set fronts (every 13 days) and backs (every 52 days).

Once a year, card overhaulers . . .

1. Pull screens and clean or replace them.

When card is clothed, card clothers . . .

1. Check bearings, journals, and shafts.

DRAWING FRAMES

Every 90 days, overhaulers . . .

1. Remove all top and bottom rolls, check, clean, and replace after buffing.

is common. This saving, along with other advantages, is saving Alabama mills from 0.0011 to 0.23¢ per pound of stock processed.

MORE OUTPUT

Mills running heavier card sliver have automatically increased production. Neps are generally reduced and card sliver evenness improved. But evenness sometimes tends to deteriorate at drawing.

Typical reports:

"Raised sliver weight from 56 to 112 grains, production from 13 to 18 pounds per hour. Evenness in card sliver better. Worse at drawing. Roving unchanged. Nep count down from 2.15 to 1.59 per grain. Yarn more uneven and has less strength."

"Increased from 60 to 81 grains —from 16.04 to 21.60 pounds per hour. No change in quality. Neps down from 11 to 4 in 75 yards of yarn. Uster variation in heavy sliver lower."

SPINNING—MAINTENANCE STEALS THE SHOW

Eighteen mills have detailed maintenance programs for spinning. These reports covered things like methods of cleaning steel rolls, number of people required, operations performed, work assignments, records. Here's a summary of what they say about maintenance program in Alabama:

Steel rolls are cleaned from one to four times a year. Chrome-plated rolls are cleaned every two years. One mill uses a wire brush driven by air. Others use brushes made from card clothing. One mill checks for crooked rolls while the frame is running, stops it on the doff, removes rolls and places them on a rack, wipes rolls with wet waste and then dry waste, checks stands for alignment, greases stand, then replaces rolls. Most mills, however, use a brush and some kind of solvent or cleaning compound.

When frames are torn down for scouring, common practice is to inspect, clean, repair, and set all working parts.

One mill carries its program pretty far. Here it is:

1. Prepare frame by removing clearers, rolls, and other parts.
2. Clean steel rolls, ring rails, and leather aprons, then check for worn parts.
3. Level and align frame, stands.
4. Remove, clean, and adjust head gears. Replace if necessary.
5. Lubricate frame and adjust tape idlers.
6. Remove bolsters and drain oil.
7. Refill spindle bases and replace the bolsters and the spindles.
8. Clean around spindle bases and level ring rail.
9. Check cross shafts, weights, and rockers.
10. Plumb spindles.
11. Set thread guides, door locks.
12. Buff top rolls, start frame.

Antifriction spindle oil gets changed anywhere from six months to two years in reporting mills. One mill changes when the oil turns dark. Others don't change at all—just add oil when it's needed. Another mill has a special spindle that requires grease only once in five years.

Average life of leather used on bottom rolls is about one-third to one-half as long as that of synthetic coverings. Synthetic aprons run longer on cotton than on rayon.

Mills plumb antifriction spindles at intervals ranging from six months to three years. Most prefer a one-year interval. Frames are aligned and leveled generally at one- to two-year intervals.

As for apron changing, the most common practice is to leave good ones on the frame. A few mills change all aprons at regular intervals and save the good ones to combine with other good ones until there are enough for a complete frame. Most mills frown on the practice of mixing new and used aprons.

Most cleaning crews amount to four people at most.

from Picking Right up to Roving

2. Clean and check all gears, including tube gear.
3. Set rolls.
4. Clean and check turntables.
5. Align and level frames.
6. Check calender rolls.
7. Check all bearings and roll stands.
8. Check and set trumpets.
9. Check roll run-out.
10. Clean frame completely.

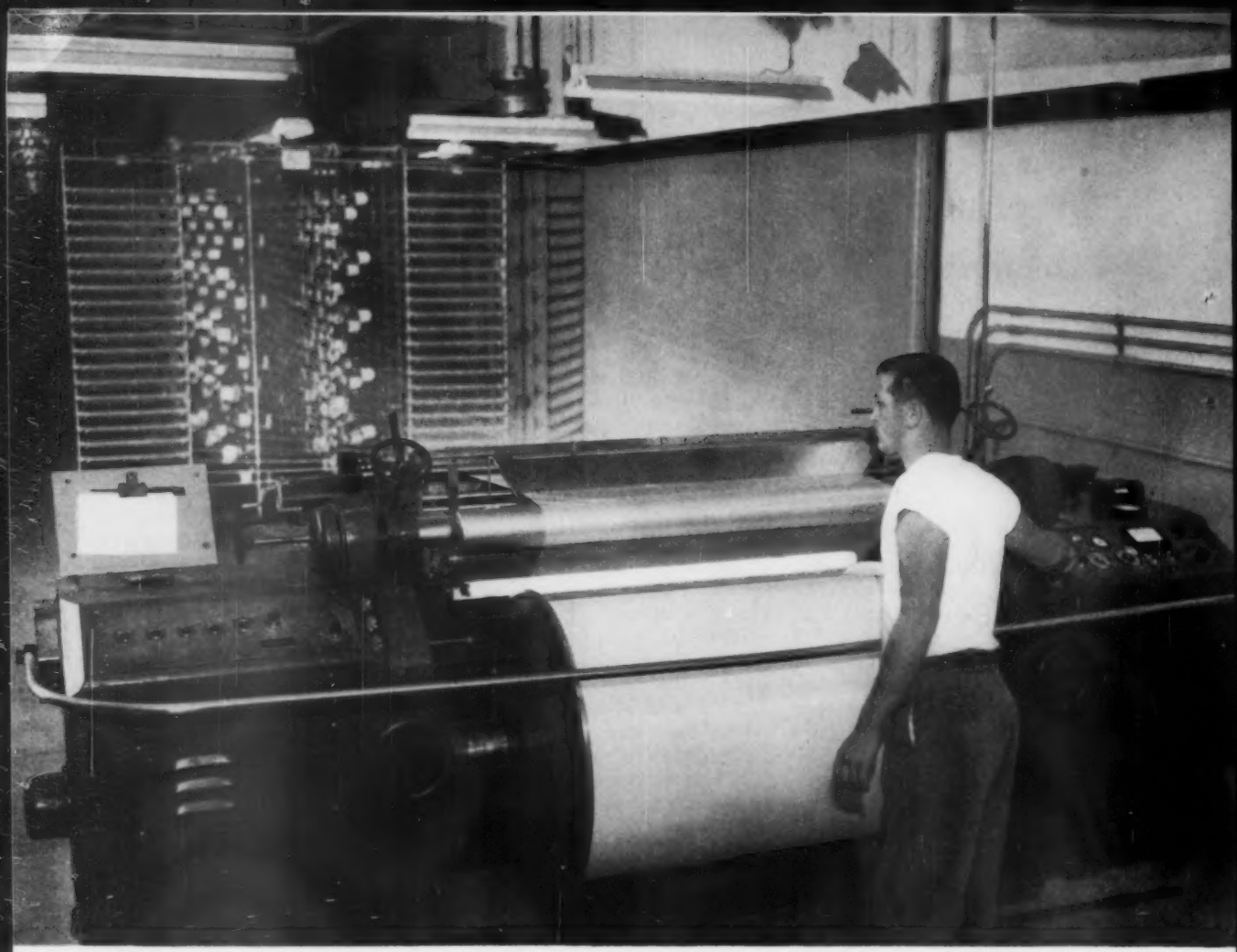
Every two weeks, overhaulers check frames with metallic top rolls as follows:

1. Remove all top and bottom rolls and clean and oil bearing seals.
2. Remove all gears. Clean and set.
3. Check alignment, clean roll stands, reset rolls.
4. Check and set trumpets.
5. Check alignment and level of roll beam.
6. Clean frame completely.

ROVING FRAMES

Every nine months, overhaulers . . .

1. Clean frame completely.
2. Remove and clean all rolls and buff top rolls.
3. Clean and grease roll stands.
4. Clean all gears. Set and replace if needed.
5. Clean and block flyers.
6. Clean and grease bobbin and spindle shafts.
7. Clean bolsters and spindles.
8. Balance carriage.
9. Clean, oil, and adjust steps.
10. Set stroke and full-package knock-off.
11. Check builder and dog.
12. Replace or turn clearers.
13. Check, clean traverse motion. Align trumpets.
14. Check condiion of arbors, saddles, cap bars.
15. Align and level frame.
16. Check roll run-out.



WARPING for high-speed knitting machines is sped by this 30x42 warper. Device warps 30-in. spools at speeds up to 650 ypm. Standard warp constructions come on producers' beams. Chopak makes the special styles on this warper.

A New High in Knitting Speed

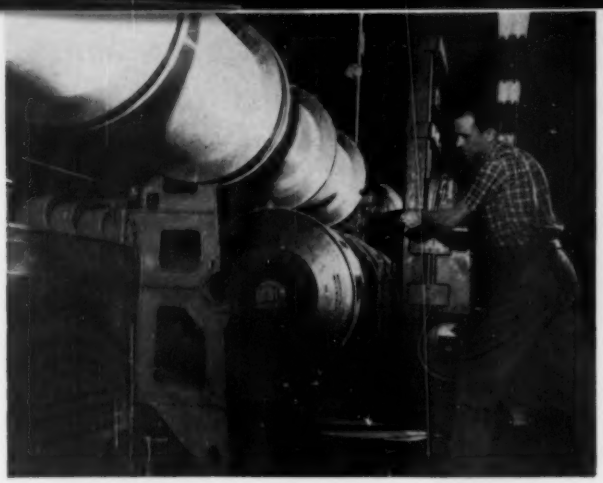
Putting new and old tricot equipment side by side gives this mill a clear comparison of just how efficient the new high-speed machinery is—in increasing output, raising quality, and lowering maintenance costs.

HIGH-SPEED knitting is really paying off at Chopak Mills, Inc. (South Williamsport, Pa.) right across the board. Chopak's new, up-to-date, high-speed equipment (Textile Machine Works) outdoes the mill's slower tricot-knitting machines by . . .

- Increasing output.
- Boosting machine efficiency.
- Improving fabric quality (with only a 4-point variation in yield).
- Reducing seconds to less than 0.5% of production.
- Lowering runner length variations (now off only ⅛ inch a week).
- Saving on broken needles (now 75% less for each pound of fabric).
- Keeping labor costs unchanged.

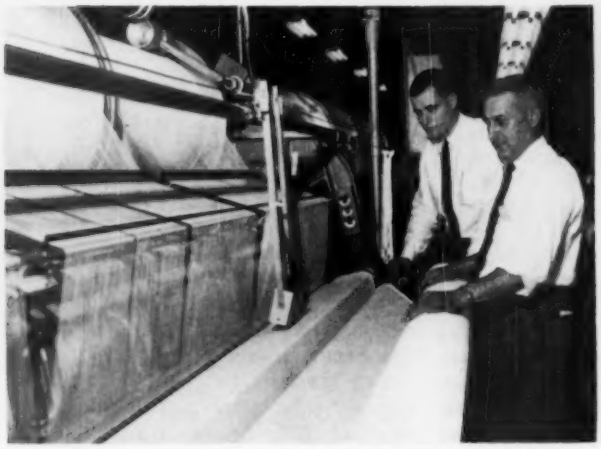
At Chopak, 800- and 400-course-per-minute tricot machines knit 55-den. fabric side by side. Chopak has 48 tricot machines, of which 24 are high speed (800 courses/minute). All tricot machines turn out 168-in. fabric, the major portion of which is 28-gage, 55 den. acetate tricot.

By Robert K. Worth
Plant Superintendent
Chopak Mills, Inc.
South Williamsport, Pa.

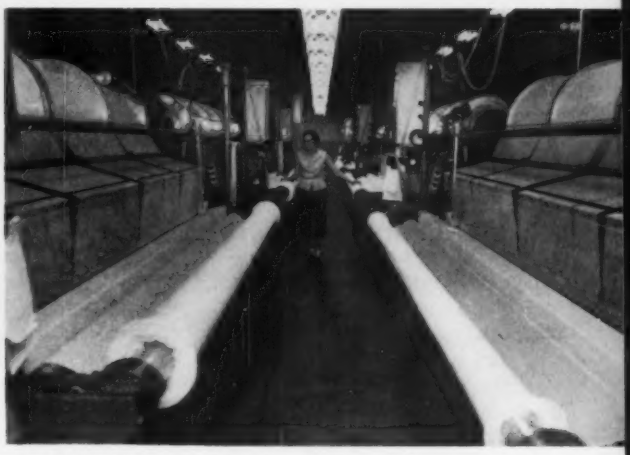


LOADING warps into tricot machines is quick work at Chopak with help from this hydraulic hoist, powered by electric motor.

THREADING-in high-speed tricot knitting machines is next step, preparatory to starting new warps.



CHECKING equipment: Assistant Superintendent Alfred P. DiCenso (left) and Superintendent R. K. Worth check cloth.

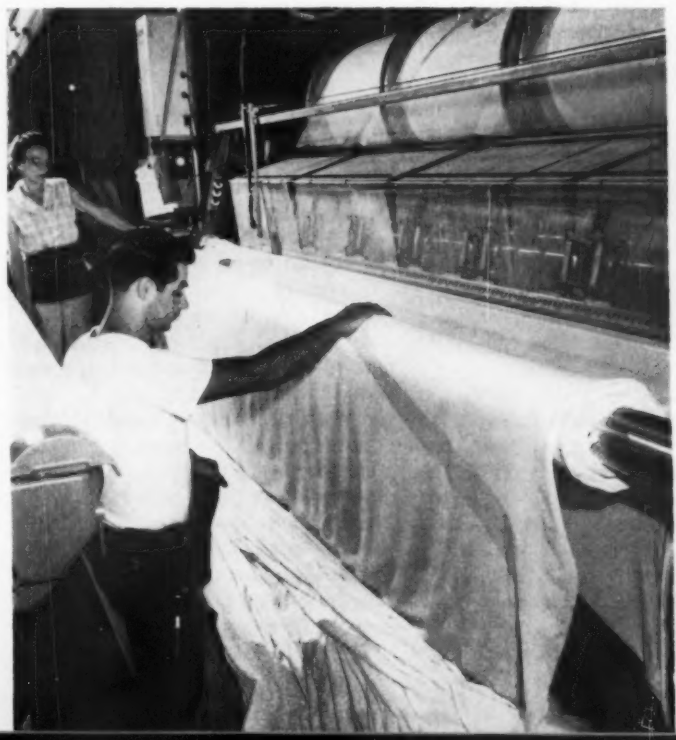


PATROLLING is easy job because electronic scanners tell immediately which machines need attention.

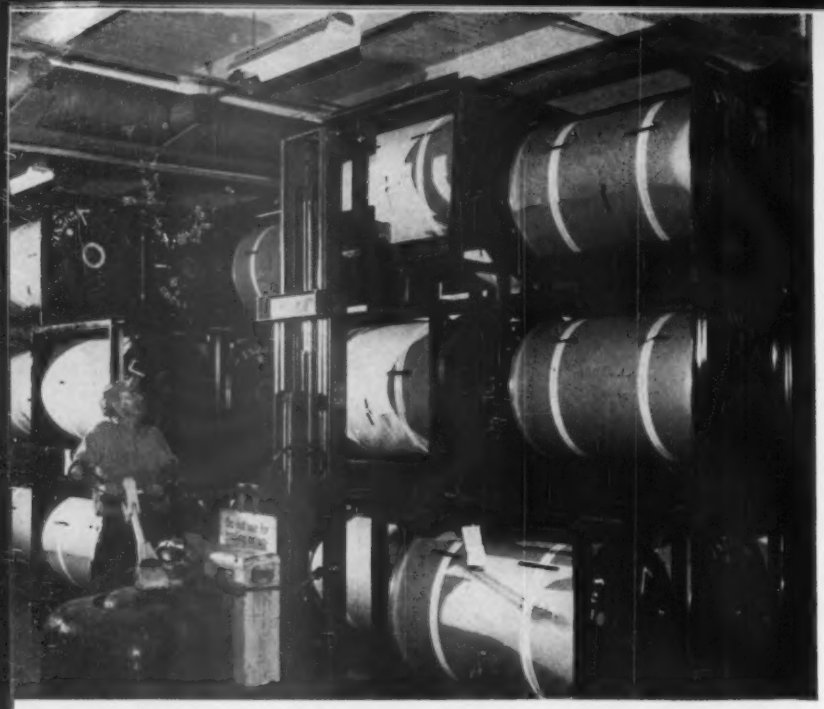
One reason why Chopak can assess advantages of new equipment is this: Management keeps a complete set of records on each piece of fabric produced, hence can easily make direct comparisons of the two types of machines.

Here's the story the records tell:

Gaging efficiency—When measuring production performance of tricot machines, you should consider more than just knitting speed alone. With all things being equal, Chopak's 800-course/minute units would produce twice as much fabric as the 400-course knitters. But management found that the high-speed machines have additional advantages. Stops are fewer. Records list all machine stops such as warp



DOFFING and bundling tricot fabric is final production step. Now cloth moves on to local dye house for finishing.



REMOVING warps from storage comes easy with this fork lift truck. These 1340-end warps on producers' beam are part of a two-week yarn supply.

KNITTING SPEED . . . *Begins on page* 68

entry, overhaul, needle replacement, and guide-bar replacement. With the Reading knitting machine the efficiency is over 90%, which is better than the slower machines even when they were new.

When running novelty fabrics the machines naturally run slower. But not a great deal slower. With the high-speed machine, 700 courses per minute—only a 12½% reduction—is the rate for such special work. With the older machines, on the other hand, there's a reduction of 25%, down to 300 courses per minute.

Here's another measure of machine efficiency: The fast machines use a 30-in.-dia. warp that holds 50,000 yards of yarn, while the slower units use 21-in.-dia. warps, which hold 20,000 yards of the same size yarn. Warps run out on both new and old machines in 15 days. Therefore the high-speed machines have a 2½-to-1 production advantage.

Boosting quality—In addition to higher production and increased efficiency, production records show greatly improved quality on the fast machines. Seconds are less than 0.5% while on the slower machines fabric defects are 2.5 to 3 times higher on comparable styles.

Defects (when they occur) never become serious, because the mill uses photo-electric scanners (Appalachian Electronic Instruments, Inc.) on the knitting machines. These units constantly scan the cloth for defects, and stop the machine when a defect occurs. This operation limits the length of any defect to a few inches. Because the machine is stopped and lights go on, the knitting patroller knows immediately which machine needs attention urgently.

Getting uniformity—Stitch variation has always been a problem on machines that have mechanical or friction let-offs for the warp beams. These let-offs don't have the capacity to deliver the same length of yarn to the needles from the beginning to the end of the warp. But the high-speed machines have an automatic let-off and positive take-up control. With these new machines Chopak sets for a given fabric yield. The fabric weight remains constant without any further adjustment.

As part of our quality control, the operator checks runner length (length of yarn for given number of stitches) three times each shift. The variations in runner length throughout a week's operation may be as low as ⅛ of an inch—an outstanding performance.

Saving needles—Preventive maintenance is part of the Chopak program. Every machine gets a complete check-over, which takes about 30 minutes, at approximately three-week intervals (or at every warp entry). The maintenance man checks these seven points: crankshaft system, beam bearing supports, plunger assemblies for pattern wheels, alignment of guide-bar hangers, warp-beam let-off, setting for guide bars, and setting for needles.

It may be that maintenance helps prevent broken needles for both new and old machines. But in addition, management finds that the high-speed machines have only 25% as many broken needles for each pound of fabrics as do the slower machines.

Maintenance shows that guide-bar wear is reduced on the fast machines. To date, there hasn't been a single bar replacement. Chopak estimates the guide bars will operate satisfactorily for three or four years.

Saving labor — Management found that a knitting operator who is experienced on the slow machine can easily switch over to the high-speed units. And there's no need to reduce the workload. An operator runs the same number of machines of either type.

When the mill installed the new machines, with 10-hp. motors instead of 5-hp. motors as on the older units, management modified the electrical system. Distribution of busduct and additional capacitors were installed. But the new machines don't use any more floor space.

Preparing warp — Some ready-warped beams are bought from the yarn producers. Chopak also does its own warping. For the slow-speed knitting machines, two 21x21 warpers (with 600-end creels for each) operate at 500 ypm.

Last year Chopak bought a 30x 42 warper (Cocker) with a 1,200-end creel, which operates at 650 ypm. Now the mill can warp some of its own beams for the high-speed knitting machines.

Controlling stocks—The tremendous output of the high-speed tricot knitting machines required additional yarn storage. There are about 100,000 pounds of yarn kept in stock—some on producers' beams, the rest ready for warping.

When Praising—Watch Out

Use praise wisely, and you'll get better results from your employees. But be careful—praise can backfire in a way you least expect.

IT'S AMAZING—the things that can get a supervisor into trouble.

Take Frank Rollins, for instance. He's responsible for the people who operate six rows of spinning machines and he's a pretty good manager. Here's what's bothering him:

One of his girls—she's rather new, has been around about seven months—has been having some kind of trouble at home. He doesn't know what it's about, but she's been tense and unhappy for several days. She doesn't let it affect her work, though. Stays on the job, keeps up with the others.

Frank thought it might cheer her up a bit if he said a good word. Just to let her know he appreciated her work. But when he gave her a little pat on the back, she burst into tears. "Now, how are you going to figure a thing like that?" Frank asks bewilderedly.

Frank stayed confused until two weeks later, when this employee explained what was bothering her. She and her husband had been arguing about her work. Her husband wanted her to stay home and look after the kids and the house, but she liked her work—"especially because everyone is so nice around here." So the gentle, appreciative gesture by Supervisor Rollins aggravated the problem. It only dramatized to the employee the kind of atmosphere she was going to have to give up if she left her job.

Supervisor Rollins' experience points up one of the problems of praise—timing.

By S. G. WILLIAMS
Management Consultant
New York City

ALWAYS TWO SIDES

We think of praise as a "good," a reliable tool or device that supervisors can use to get desirable results. "Everyone likes to be praised," we say, and we generally believe it —until the principle backfires.

We know the rules, such as: "Bawl them out in private, but praise them in public," and "Praise is one thing, flattery another." What we do not know is why, when we do our best to follow the rules, we sometimes end up in worse shape than before we started.

Let's see what we can discover about praise that will guide us through these trouble spots.

REWARD OR THREAT

As long as we can remember we've heard about the carrot and the stick. From childhood recollections there emerges a picture of a donkey, with a carrot held out in front of his nose and a stick at the ready not far from his tail. Most of us, however, have never taken the time to stop and ask, "What does it really mean?"

Does it mean some people (same as some donkeys) can be moved faster when they're offered a reward, while others go into action with greater speed if they're threatened? Or does it mean that the *same* donkey (or person) responds better on one occasion to the promise of some benefit and responds better in another situation to a promise of pain?

Translate these two different versions into work situations. For instance, visualize yourself calling your employee group together, then telling one group: "You all know the Annual Safety Award Dinner is tonight. Now you—Mary Lou, Bessie, Sharon, Sandra and Tom—can leave an hour early today so you'll have time to put on your best bib and tucker." To another group, you say: "Jennie Mae and Helen—you'd better get to that dinner or I'll skin the hide off of you tomorrow morning!"

Or take the second version, where one time she's a carrot person and the next time the same person needs the stick. Here's an employee who has recently been put on tie-ins and is having a hard time getting the hang of it. Yesterday you complimented her on her progress. Result: an extra spurt of effort. Today, should you stick to what worked yesterday, or should you try the reverse? "Hey, there, Frances, you're making real headway!" or "If you'd concentrate a little harder, Frances, I think you'd get on top of that job sooner." Solomon in all his wisdom could not answer the question with any assurance.

Although it is no doubt true that certain people are motivated more by a hunger for approval and others are motivated more by fear, perhaps it would be better if we ceased any reliance on such generalized ideas and sought the simple facts to aid us in our own use of praise. What are those simple facts?

YOU CAN'T FAKE IT

Fact Number One: You can't get away with fake praise. In other words, you can praise but you can't *use* praise. Dishonest or artificial attempts almost invariably cause trouble.

Clearest lesson in this department

comes out of the mouths of babes. Every supervisor who has a small son or daughter has been caught in this trap when he has come home, found the youngster busy with pencil or crayon, taken a quick glance at the artistic product and exclaimed, "Boy! That's a good drawing!," then had Junior angrily retort, "It is not!", and venomously scribble all over the page.

Youngsters can sense at once what you think. You think that the drawing is a meaningless jumble and the child knows you think that. You gain—and deserve—nothing but angry disrespect for insincerity.

In the shop, such manipulative praise not only marks your own fraud, but has two other bad results: It raises feelings of guilt in the person who knows he hasn't done what he should or could have done to deserve the praise, and it angers the other employees to have you building up someone who had not earned the build-up.

This suggests Fact Number Two —the fact that creates the most havoc.

THE WRONG TARGET

Every single one of us has been an aggravated victim of this poorly conceived use of praise. We've sat and heard someone else being lavishly praised for an accomplishment that we, not they, pulled off. Most often, this occurs by way of a boss getting all the credit for what is done by one or more of his subordinates. But it also happens where everyone involved is on the same level.

Greg Staley is a dramatic example. The general manager of Greg's plant set up a committee of four men, including Greg. A fellow named Martin was chairman. The task was to try to track down a serious cost leak.

While the other three men loafed and were "too busy," Greg sailed in and did a top-notch job. He traced raw materials through the shop. He talked several times with all the people likely to have a hand in the questionable processes. He spent time in a number of departments with his eyes open to detect tell-tale morale problems. He drew charts and graphs, and he eventually came through with a masterful report that identified and made it possible to plug the leak.

The general manager was delighted. He called committee-chairman Martin into his office and thanked him for the fine job. Greg never was mentioned and never heard a word about the appreciation. The general manager was badly informed. He missed the target with his praise, and he couldn't understand why Greg resigned shortly thereafter.

TIMING

Fact Number Three is that there are right and wrong times for praise.

Ed Ballou praised a top producer just when everyone else was having a bad week and the department's production was falling short. By praising one employee at that particular time Ed was slapping the face of everyone else.

Babe Brown jumped the gun, publicly lauded a special-project engineer one day before the special project fell apart and was abandoned. *Most* embarrassed was the engineer, although Babe kept mighty quiet, himself, for a week or two.

May Franklin, one of the really successful female supervisors in a spinning room, gave her girls a big pep talk. They were doing wonderfully. Two more days and they would have the coveted safety award all wrapped up. The pep talk plus the imminence of the award made the girls so tense and nervous that there were two accidents that same afternoon, completely ruining both the record and the chance to win.

HOW TO MAKE PRAISE PAY

You can praise your people as successfully as the next man if you follow what the facts dictate.

Don't *use* praise. Praise when you feel like it, when the urge seizes you. "By gosh! Pete's really got the thing licked!" Then is the moment to let Pete know you think he's done a fine job.

Don't sit back in your office and say to yourself, "Now let's see. How can I spread a little baloney around to do myself some good?" Or, "I wonder if it would get me off the hook if I laid it on about that bowling score he got last Friday?"

Don't try to make up for depression or concern by praising the troubled person. Much more desirable are silent understanding and an expression of sympathetic willingness to help.

When you do praise, be sure you are praising the person or the group that deserves it and has earned it. Playing politics with praise will lose you more votes than it will get you. One of the sorriest situations we know of was caused by this practice.

A manager of a large section had two assistants, one whom he liked and one of whom he feared. The latter was a very smart, very capable young man. Every time the able assistant did something noteworthy, the manager would give the credit to the other assistant, taking pains to see that the higher-level managers heard about the accomplishment. The young victim of these political machinations knew about it but suffered through it. Then he was promoted over the heads of his previous boss and colleague. He was not vindictive, but he was human, and he made those two present written, signed evidence for every single thing they did or said, before he would have anything to do with it.

Don't drop praise where it will be obviously inappropriate. Wait till it happens, then praise it.

GUIDE LINES

What all this adds up to is three simple standards that can help you avoid problems of praise and be a better supervisor, too. Skilled praisers have memorized these few lines and have been thankful for it time and time again:

1. Make praise a clean-cut reward for earned approval—nothing else.

2. Just as with any other communication, be sure of your facts before you praise, so that he who gets the praise is the one who deserves it.

3. Play it absolutely straight, but watch your timing. Praise is not an independent incident in a vacuum.

TEXTILE WORLD
Vol. 111, No. 2
February, 1961

CHEMICAL TREATMENT AND FINISHING

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Dyeing Where They Said Not To—Modern equipment and savvy management: That's the combination that's carrying this yarn-dyeing operation to new highs in an area that some textile mills have left 84

Now—Crease Resistance for Spun Rayon—Latest technical word on building crease resistance into a fabric that nobody thought would take it 91

For more satisfactory carpet shades, the man to see is at Sandoz

Whether your carpet is wool, cotton, or nylon, Sandoz dyes and dyeing formulas can help you offer improved color fastness and levelness. Recent improvements credited to Sandoz technology include the dyeing of wool at the iso-electric point (using Lanasyn dyes and Lyogen SMK) and the barre-free dyeing of filament nylon with Lyogen P and Lyogen SF. For your cotton products, Sandoz provides the fastest-to-light directs (Lumicrease colors) as well as a full line of vat dyes. Sandoz can offer you shade matches completely compatible with all types of carpet backing.

For details and particulars, write, wire or 'phone headquarters: SANDOZ, INC., New York 13; Charlotte 5, N. C.; Cincinnati 26; Hudson, Mass.; Los Angeles 13; Philadelphia 34.

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THINKS AHEAD WITH TEXTILES

SANDOZ

News of the Month in . . .

Textile Chemicals

By ROBERT W. PINAULT, Associate Editor, TEXTILE WORLD

Heat-Treat Polyesters Just Right To Boost Stability and Dye Potential

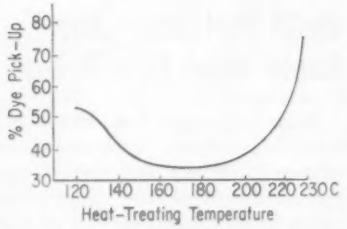
If you heat-treat polyester-fiber fabrics at the right temperature, you can improve their dimensional stability and increase the dyeing potential by nearly 50%.

Recent careful experiments show that to get these effects the yarn or fabric should be heated to 220 to 230 C. (428 to 446 F.) for five minutes. The goods can be relaxed or held out to their original dimensions during the heat treatment.

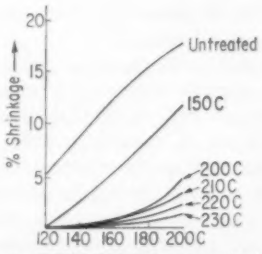
A side benefit is that goods treated this way are less liable to form permanent creases in subsequent rope-dyeing or scouring.

The heating can be done by hot air, liquids, or infrared heat. It is important to get temperatures up to those suggested because at intermediate spots between 120 C. (248 F.) and the maximum allowable temperature for polyester fibers, dye pickup falls off very sharply. The graph (curve 1) shows what happens in this respect.

The effect of heat treating on dimensional stability was tested on several sets of heat-treated polyester fabrics that were later exposed to different degrees of heat for 15 minutes. This time is adequate to produce maximum shrinkage. The graph (curve 2) shows that heat treatments under 220 C. are of little value in controlling dimensional stability, but above this temperature excellent stability results.



Curve 1: DYE PICKUP potential varies when polyester materials are heat-treated at various temperatures.



Curve 2: SHRINKAGE curves look like this for heat-treated polyester fabrics exposed for 15 minutes to temperatures of 120 to 200 C. Figures at curve ends indicate the degree of heat treatment. Note that treatment under 220 C. is of little value.

Dyeing and Setting Stretch Yarns In One Process

High-quality stretch yarns made by the old method of combining an S and Z yarn are hard to dye if the yarns are twisted, set, backwound, and doubled before dyeing. British Nylon Spinners has developed a process in which the highly twisted yarns are package-dyed separately at 4 psi. or higher, and are simultaneously twist-set.

After dyeing, the S and Z yarns are dried, back-twisted, and doubled. The stretch yarns so produced are soft and lofty.

New Silicone Catalysts Promise More Stability

Now you can catalyze water repellents based on silicones with more stable compounds than the alkyl titanates you previously used.

The reaction between inorganic metal salts such as titanium tetrachloride, zirconium tetrachloride, zinc chloride, and calcium chloride with an organic amine produces stable, active catalysts that do not decompose in water. Particularly suitable amines include monoisobutyl amine, octylamine, or an ethanolamine like triethanolamine.

You can obtain even better stability of the catalyst if the metal salt is first reacted with a polyhydric alcohol such as ethylene glycol, 1:3 butanediol, or 1:2 propanediol.

To make a satisfactory catalyst of this type, react 380 grams of titanium tetrachloride with 540 grams of 1:3 butanediol at 115 C. Add 477 grams of triethanolamine. Heat the mix to 170 to 200. This way, you'll produce a water-soluble catalyst. British Patent 847,414 to Monsanto Chemicals Ltd. gives more details.

Latex Is Base for CRF

Either natural or synthetic latex is the base for a crease-resistant finish developed in France. The goods are impregnated with a solution of the latex, dried, and then treated with a mono- or polychloromethyl ether. The ether should contain one or more—$O \cdot CH_2Cl$ groups.

The treated fabric is again dried, and baked. The process doesn't retain chlorine. It provides a washable, no-iron finish.

Stream Pollution Control Can Yield Hidden Benefits to Mill Management

Plants faced with the problem of cleaning up the streams into which their effluents are dumped can now take heart.

Last month, H. W. Poston, regional program director, Water Supply & Pollution Control, Public Health Service, Region V, U.S. Department of Health and Welfare, Chicago, cited several instances where pollution control actually pays off.

Speaking before members of the 12th Plant Maintenance and Engineering Conference, held along with the Plant Maintenance and Engineering Show, Mr. Poston also stressed the fact that stream-pollution control is becoming an increasingly serious matter.

Today new pollutants, termed "exotic" types, are coming from industries unheard of before World War II. They pose difficult problems for old water-treatment processes that once were satisfactory.

Population increases and the huge quantities of water used by individuals will push estimated water requirements for 1980 up to 600-billion gallons per day. Reuse of water is thus inevitable.

What has been done to meet the situation?

In congested areas 90% BOD removal, once thought adequate, is now insufficient, partly because of the exotic pollutants. But a ray of hope that the high costs of pollution abatement can be turned into profit in some instances was cited in the report. For example, a chemical company recovers 50,000 tons of aluminum chloride annually and sells it to a paper mill. Analysis of waste from another chemical company showed that it was so rich in vitamins that waste-recovery products became a major item of company sales.

Distillery wastes, recovered instead of thrown away, have become profitable to distilleries and useful to cattle. Sulfite liquors from paper mills contain large amounts of fermentable sugars. Today, instead of being a serious source of stream pollution, the sugar content of these liquors is converted to ethyl alcohol and feed yeast.

Mr. Poston noted that not all waste-disposal methods will turn a profit. Even so, the over-all benefits to communities and industry are great.

Vinyl Pyridines Can Boost Vinal Dye Pickup

Polyvinyl alcohol fibers, marketed as Vinal, have increased affinity for direct and acid dyes if you add a copolymer of polyvinyl alcohol with one of several suitable vinyl pyridines.

These substances are included in the aqueous spinning solution of polyvinyl alcohol. They wind up in the finished yarn as uniformly distributed dye sites.

Vinal yarns modified in this way will contain 0.6 to 1.0 combined nitrogen. The need for the vinyl pyridines is caused by the acid-formaldehyde treatment that is given to PVA yarns to improve their wet strength. Compounds such as 5-ethyl 2-vinyl, 2-vinyl, and 4-vinyl pyridine are suitable to produce the increased dyeability.

Now You Can Dye Rugs, Backings at Same Time

With a process developed by Naugatuck Chemical Div., United States Rubber Co., you can dye rug backings right along with the rugs.

Chemicals called color acceptors are blended into the latex used for the backings. These modify the latex so that the backing takes up dyestuff. Patents are pending on this use of the chemicals involved.

For Better Formaldehyde Fixation—High Acidity

You can get better fixation of formaldehyde on cellulosic fibers if you keep the acidity of the treating solution high, says a report based on British Patent 838,394 to Tootal Broadhurst Lee Co.

The process gives dimensional stability in cellulosics, nylon, and wool. High acidity is maintained during the drying and curing steps by including $Mg(H_2PO_4)_2$ in the bath. The chemistry behind this type of salt is based on the fact that when the acid salts of certain metals with certain polybasic acids are concentrated, less-acid salts separate out and the solution becomes more acid.

Mentioned in addition to Mg are Li, Ba, Ca, Sr, Zn, Cu, Mn, Cd, and Co. The polybasic acids include ortho-or pyro-phosphoric, malonic, oxalic, maleic, tartaric, and phthalic.

German Process Promises Better Water Repellency

A German process provides excellent water repellency that is durable to laundering and drycleaning on all fibers.

The chromium complex salt of a 10-carbon aliphatic carboxylic acid provides one element of the product. Dimethylpolysiloxane dissolved in water and methylene chloride is the other chief component. Stabilizers such as formaldehyde, glyoxal, or hexamethylenetetramine are also used in the formula.

To make the product, react chromic chloride with stearic acid in isopropyl alcohol for 1½ hours under a reflux condenser. Treat the stearato-chromic chloride complex with caustic soda solution, filter it and cool it. Then add the dimethylpolysiloxane. After a 20-min. standing period, add the aldehyde or aldehyde-producing material. Then dilute the solution for use. Apply a dilute solution of the mixture to fabric, and dry the fabric at 60 to 90 C.

Amines, Heat Boost Dye Pickup as Much as 3000%

You can increase dye pickup potential of polyester fibers up to 30 times by treating them with various organic amines, then heating them at 165 C. for 20 minutes.

The process, outlined in British Patent 748,944, depends on treating polyethylene terephthalate yarns with organic amines that contain one or more primary amino groups together with at least one secondary or tertiary amino groups and/or alcoholic hydroxyl groups.

Such compounds include di- and triethanolamine, diethylene triamine and triethylene tetramine. Others less important include N-beta-hydroxy-ethyl paraphenylene diamine and N-beta-hydroxyethyl-ethylenediamine.

For example, you can treat yarn or fabric in a 50% aqueous solution of triethanolamine at 25 C. by padding procedures, then dry it under tension on a hot drum for a few seconds. Then heat the goods to 165 C. for 20 minutes and wash them free of residual triethanolamine. With this same method you can dye polyesters with acid dyes.

Acrylic Fiber Treatment Increases Dye Uptake

Compounds based on poly-N-vinyl-3-morpholinone and some of its alkyl-substituted derivatives improve the affinity of acrylic fibers for many dyes. From 3 to 5% of the product will improve speed and extent of dye absorption of direct, vat, acid, disperse, sulfur, and azoic dyes on poly-acrylonitrile fibers.

Apply the poly-N-vinyl-3- morpholinone while the fiber is freshly formed by treating it in an aqueous solution of poly-N-vinyl-3-morpholinone at 95 to 100 C. for about 10 minutes. Then dry the fiber at 150 C. for 15 minutes. The resulting yarns have a good white color. The fiber retains its normal strength and extensibility. Dow Chemical Co. has patented the process.

USDA's Southern Division Studies Crosslinking of Cotton Cellulose

An extensive study of crosslinking of cellulose as it occurs in the application of various treatments to cotton fibers, its mechanisms, and effects is being conducted at the Southern Utilization Research and Development Div. of U.S. Department of Agriculture.

The first report of results of these investigations discusses the types of crosslinking agents used today and some of their effects on cotton. The report was prepared by Fred S. Perkerson, Wilson A. Reeves, and Verne W. Tripp.

Crosslinking of the cellulose molecules alters the properties of the cotton fiber through changes in the mechanical properties. It is the basis for treatments used to produce wash-and-wear and minimum-care cottons with dimensional stability.

Most of the textile chemicals used at present to crosslink cotton cellulose are the N-methylol type compounds. These compounds show a serious weakness—lack of durability. This is attributed to reversibility of the reaction, which may occur during storage or in laundering.

Reversal of the reaction is also blamed for chlorine retention during laundering. Investigators suggest that these limitations of N-methylol type finishing agents can be minimized by a thorough wash after curing (to remove the catalyst) and storage in a cool, dry atmosphere. A thorough cure to drive the reaction to completion will reduce the initial chlorine retention.

The authors also discuss compounds containing epoxy groups, the acetals, poly (1-aziridinyl) compounds, and others and review the effects of these compounds, the nature of the reactions, and the advantages and weaknesses.

The authors also take up the effects of polymerization of the compounds used in treatment. They advance the idea that polymerization concurrent with crosslinking is not needed to impart wrinkle recovery. On the other hand, they show that polymer formation alone does not provide wrinkle resistance.

Primary- and secondary-valence crosslinks, permanent set, moisture regain, wet and dry wrinkle recovery, and density of cross linked cottons are also discussed.

The report is entitled "Some Studies on the Crosslinking of Cotton Cellulose, Part I, Chemical and Physical Aspects." Reprints (No. 2051) may be obtained without cost from the Southern Utilization Research and Development Div., P. O. Box 19687, New Orleans 19, La.

Did You Know . . .

. . . that a mild prescour on cotton goods can cut chlorite-bleaching costs by two-thirds? Tests show that goods saturated in a 3% caustic soda solution and steamed for 30 minutes can be bleached to an acceptable white with ½ pound of sodium chlorite per 100 pounds of goods. Loom-state fabrics need 1½ to 1¾ pounds of chlorite to get the same effect.

■

. . . that hot chlorite bleach liquors operated at pH 5.5 are efficient and release little free chlorine dioxide? Even at pH 4.5, the fume problem is not great. Either acetic or formic acid does well for pH control.

■

. . . that you can get better saturation of fabric with treating liquors if you use a three-roll pad rather than a two-roll pad? But there is a trick to it—the first nip should be hard to drive out occluded air, and drive the liquor into the goods. The second nip should be softer, to insure thorough saturation of the entire cross section of goods.

What's New In Dyes and Chemicals

Dye Carrier

Thermoprint . . . is designed to be used with the Thermosol method of color development.

The carrier produces brilliant, sharp prints when the printed fabric is exposed to 300 F. heat for five minutes.

While designed primarily to work with the Thermosol method, the product gives equal results with conventional steaming and ageing methods. No bad effects on the fabric are left after the usual soaping and rinsing treatments that follow color development. Harshaw Chemical Co., Zinsser Div. **(Circle D-1 on Reader-Service Card)**

Reactive Dyes

Cibacron Brilliant Orange GP . . . produces bright orange shades on cellulosic fibers by either dyeing or printing.

The dye has good fastness to light, washing, water, perspiration, and drycleaning. Unfixed color washes off easily. The dye is suitable for goods that will be rubberized or resin finished.

The color is primarily designed for cellulosic fibers. But it can be applied to wool by itself or in combination with other colors by the Neovadine method (Ciba).

For cellulosics, the dye can be applied by padding or batch methods. The latter method is recommended.

Cibacron Brilliant Blue C4GP . . . provides bright reddish-blue shades on cellulosic fabrics. Fastness to light and chlorine is good when it is used on cotton.

Recommended application methods are based on padding followed by Thermo-fixing or steaming according to depth of shade. Exhaustion methods are not recommended with this dye.

Cibacron Scarlet 4GP . . . is particularly suitable for dyeing cotton and rayon, but can be used on wool as a base for orange and mode shades. Application is by padding methods.

Yield is especially good by the pad-steam process. It can be increased on full shades by prolonging the steaming to 60 seconds. Dyeing by single-pad steaming is particularly good on rayon.

The dye is extremely soluble and is free from copper and manganese. It is easily dischargeable to white, and it covers dead cotton and rayon of varying affinity. The color has good wetfastness, and resin finishes do not impair lightfastness. Ciba Co., Inc. **(Circle D-2 on Reader-Service Card)**

Acid Dye

Alizarine Fast Blue RFE . . . is a bright, reddish-blue dye that is suitable for both dyeing and printing.

The color has excellent fastness to light and wet processing on wool, silk, and polyamide fibers.

Suggested applications are on knitting yarns, ladies' suitings, and coatings for the production of bright blue and baby-blue shades. The usual acetic acid-Glauber's salt dyeing methods are recommended. Ciba Co., Inc. **(Circle D-3 on Reader-Service Card)**

Acid Dye

National Fast Brilliant Crimson RB . . . produces bright, clear colors on wool, silk, and nylon. High tinctorial power, good lightfastness, and above-average wetfastness characterize the dye. The color is especially suitable for dress goods, carpet yarns, and suitings. Allied Chemical Corp. **(Circle D-4 on Reader-Service Card)**

Nonfray Finish

Javatex Non-Fray . . . provides a nonfraying finish on fabrics made from all conventional textile fibers.

The product may be applied by padding, roller coating, or spraying. It dries to a clear film. The resulting finish is nonblocking and resistant to drycleaning and laundering. Suggested applications are upholstery fabrics, woven labels, and shoe fabrics. Java Latex & Chemical Co. **(Circle D-5 on Reader-Service Card)**

Dyeing Assistant

Casservol RW . . . is an anionic product designed to aid dyeing of cotton or linen fiber or fabric in the gray state. It can be used in jig, pad-jig, or continuous-dyeing systems. The product has optimum wetting-out properties at low temperatures, does not foam, and will not affect the fine dispersions of dispersible vat colors. Sou-Tex Chemical Co., Inc. **(Circle D-6 on Reader-Service Card)**

Direct Dye

Cuprofix Blue C-FBL . . . exceeds all other Cuprofix blues in brightness and clarity of shade. The dye has exceptional fastness to light and washing, and resistance to hot pressing is good. It will discharge to a white ground if discharged before coppering.

Special applications of the color include royal blues on knitted goods and other washable fabrics made of cotton or viscose and brightening fast blues and navy shades on resin-treated materials. Sandoz, Inc. **(Circle D-7 on Reader-Service Card)**

Stripping Assistant

Algepon XR . . . is especially suited to stripping vat colors hitherto hard to discharge, such as anthraquinone types like Vat Blue 6 and some of the Olive Greens.

Once the color is satisfactorily stripped, there is no tendency to redevelop under normal conditions. The product is added to the usual caustic-hydro stripping baths. Arkansas Co. **(Circle D-8 on Reader-Service Card)**

A staple in textile manufacturing, NEKAL NF is an anionic liquid known for high quality and all-round efficiency as a wetting and penetrating agent. The news is: *the wetting ability of Nekal NF has been stepped up 50%* with no loss of efficiency in these other important directions...

- *chemical stability to alkalis, acids, hard water, etc.*
- *compatibility with the various dyestuffs*
- *level dyeing characteristics*
- *low foaming properties*

Nekal NF, an alkyl naphthalene sulfonate, may be used with confidence in continuous padding and long-liquor dyeing with vat, sulfur, and direct colors...also in package, beam, hosiery, jig, and other types of dyeing operations on various yarns and fabric constructions.

For further information and samples, get in touch with any General Dyestuff Company office.

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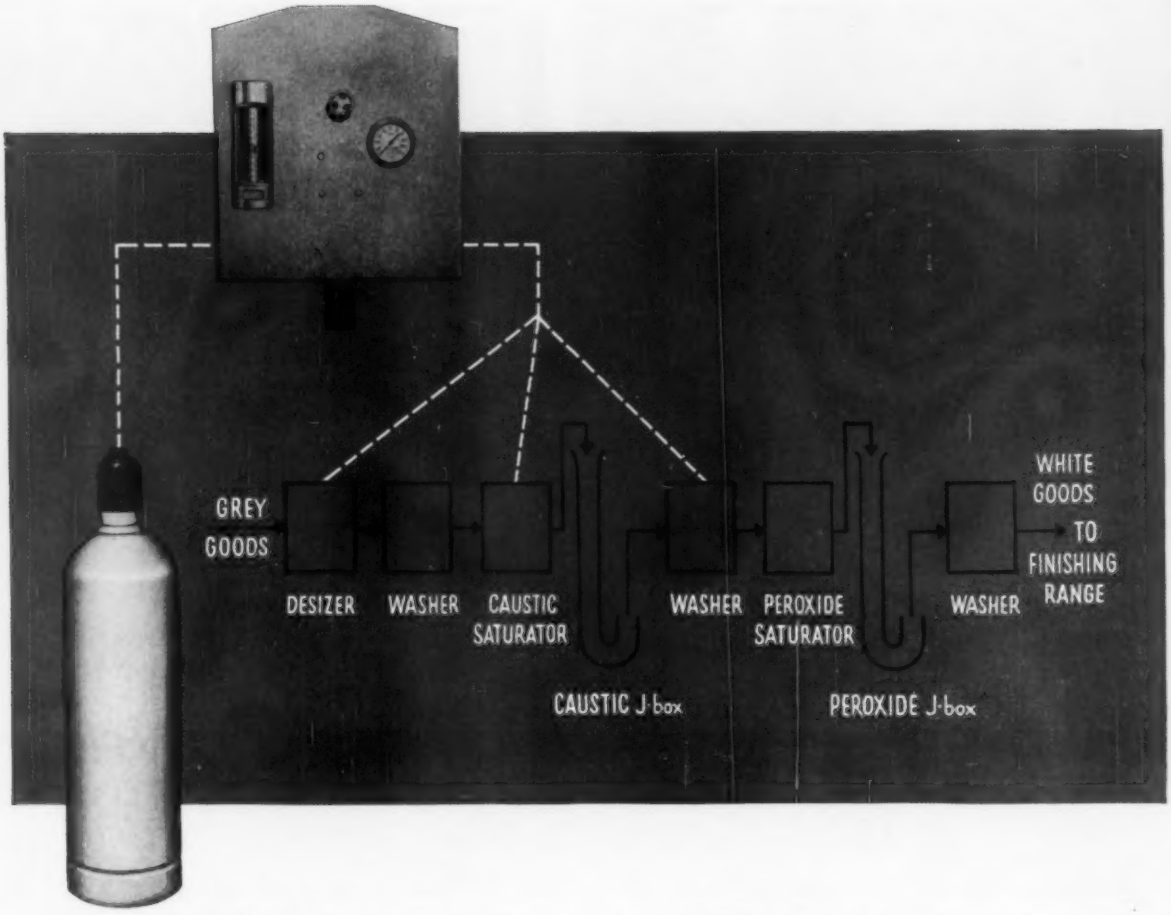
80 CIRCLE 80 ON READER SERVICE CARD

THE PENNSALT DIRECT CHLORINATION PROCESS HELPS CUT YOUR BLEACH CHEMICAL COSTS!



Pennsalt's latest technical service aid to textile finishers is a new, low-cost process* for introducing chlorine gas directly into continuous peroxide bleaching systems. The process adds chlorine to your caustic desizer, caustic saturator, and/or to the washer preceding the peroxide saturator. The result—*substantial chemical savings.*

The Pennsalt chlorination process is simple, yet effective . . . requires no expensive additional finishing equipment . . . no complex testing procedures . . . no additional operators. The simple, inexpensive control equipment pays for itself quickly through reduced chemical costs.

Pennsalt's textile finishing service can help you reduce finishing costs through direct gas chlorination. Let us give you a thorough demonstration in your mill at no charge. Ask your Pennsalt representative for details, or write Industrial Chemicals Division, PENNSALT CHEMICALS CORPORATION, 3 Penn Center, Philadelphia 2, Pa.

To get the most from your finishing operations ask for Pennsalt textile service. Assistance like this is only a part of the complete, personalized technical service available from Pennsalt. And for the most from your chemicals be sure to ask for Pennsalt caustic soda, chlorine, hydrogen peroxide, ammonium chloride, ferric chloride and surfactants.

*Patent applied for

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CIRCLE 81 ON READER SERVICE CARD

LAYING OUT four towels at a clip, these girls place them exactly on lines marked on the belt. Intermittent motion of the belt allows them just eight seconds to do job.

APPLYING COLORS is next step. Four screens, mounted in two screen frames, apply the colors to each of the four towels. Color is fed by hand to the screens as needed.

CHEMICAL TREATMENT & FINISHING

Coming up Fast: Terry Towels,

Once this kind of printing was a hand operation—with low productivity. No longer. Today, new equipment and better methods are combining to turn out these towels in short order. Now, management at this plant is making plans for even higher productivity.

PRINTING four towels with a six-color design in eight seconds is fast work. And that is exactly the pace that's being set at Melville Textile Print Works, Inc. (Statesville, N. C.).

Today, Melville is riding a crest of demand for printed terry towels (see photos, above)—a demand so great that the company is running two shifts to keep up with orders.

Each towel is printed with a complete design. The printing is automatic, and it's done on a special screen printer developed by Precision Screen Machines Co., Inc.

A second machine is now on order, Plant Manager George Melville reports.

Even though the printing itself is automatic, there's still some hand labor involved in producing the towels. They have to be laid on the print-machine belt by hand at marked positions on the belt.

And the towels have to be transferred by hand from the print machine to the specially built drying and curing unit.

Printing four towels every eight seconds on three shifts may sound like an awful lot of towels if you project that figure to a 'round-the-clock production schedule.

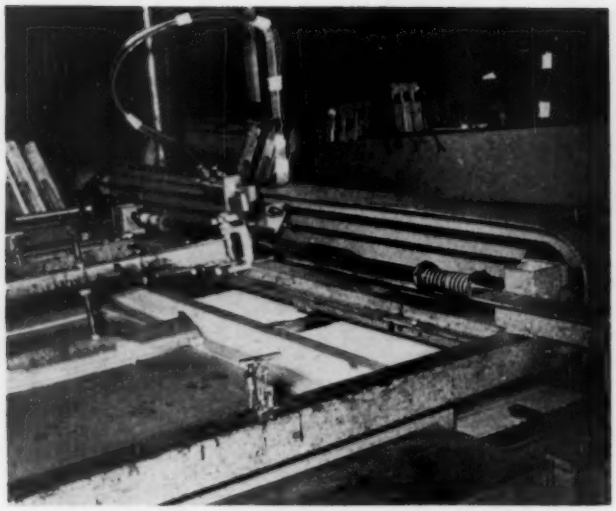
And it is a lot of towels. But you have downtime for color changes, and stops to remove lint and short threads that accumulate under the screens. Other interruptions also keep production under the theoretical limit.

Even so, you can expect a hand-towel operation like this one to turn out several hundred dozen towels per shift.

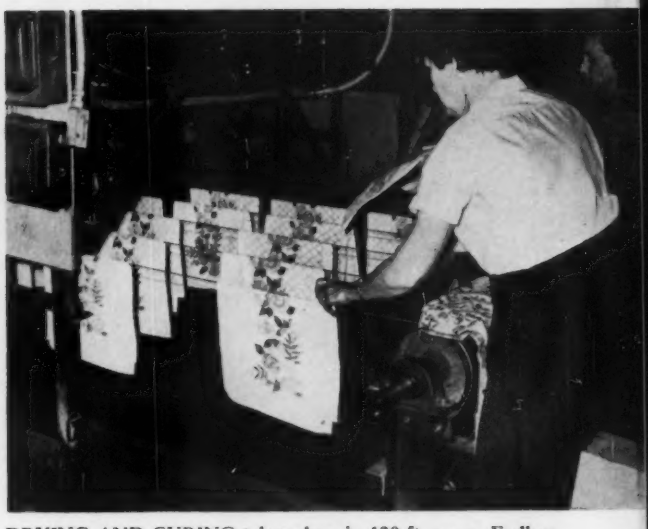
Precise unit production, of course, varies with towel size.

HOW MACHINES WORK

Precision Screen Machine Co.'s conception of an automatic screen printer is simple in comparison with other types. The printer uses one



SQUEEGEEING works like this: Two-bladed squeegees move across screens under air power. Piston motion transfers to chain that locks into squeegee head, which is tilted by air cylinder.



DRYING AND CURING takes place in 120-ft. oven. Endless cables carry towels through, drop them into trucks at opposite end. Inspection and counting precede final packing.

Hottest Thing in Printing

electric motor to move the neoprene-coated canvas belt upon which the towels are printed.

All other motions are performed by compressed air. Belt motion is cushioned at each repeat stop by a hydraulic cylinder that absorbs most of the mechanical shock.

A simple programing unit is driven by a miniature electric motor that drives a shaft on which a series of cams is mounted.

The cams actuate microswitches that in turn energize relays. The relays power solenoids that operate air-control valves. Compressed air is the prime mover for the squeegee motion and the screen-frame motions, too.

Melville's machine is set up to give 30- or 60-in. repeats, and it zeroes in well to give perfect register of the various colors.

A muslin cover protects the belt from excess color. It's gummed to provide adhesion of the towels to its surface.

PIGMENTS AT WORK

Melville uses pigments dispersed in oil-phase resin emulsions to produce the towel prints. Exact formulations are a company secret, but acrylic resins play a large part in getting the necessary washfastness and crockfastness coupled with a soft absorbent hand—properties on which manufacturers and customers alike place a high premium.

Pigment printing is ideal for this particular job because after printing, the towels need only be dried and cured. They never get wet, and the colors do not need steaming to develop full shades. In short, the process is surprisingly simple.

When the towels come from the drying-curing range, they are examined, tied in bundles, and packed in cases. Seconds are remarkably low—normal runs average about ½%. Many of those that are graded seconds have nearly invisible faults.

Is unit printing a flash in the pan? Plant Manager George Melville doesn't think so.

"Mechanization of the process has made it possible to produce these goods in real volume, but there are still millions of bathrooms and kitchens that are waiting for towels decorated in this way. We'll have a second machine in operation within a few weeks to take care of increasing demand."

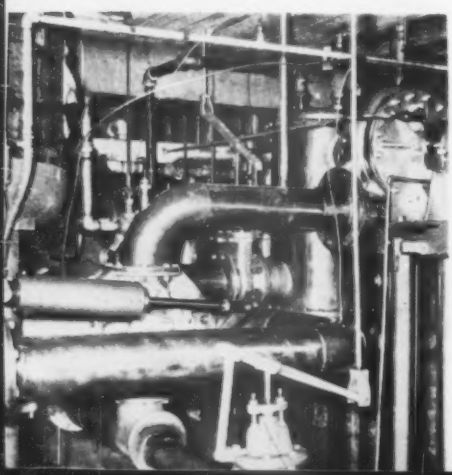
Other projects in mind: "I'm figuring a way to get the towels off the machine mechanically," Melville says.

Considering the record of the Melville organization for innovation (for example, building its own automatic screen-printer and drying-curing unit—TEXTILE WORLD, May, 1960, pp. 64-65) it's a good bet that there'll soon be an answer to the problem of getting towels on the machine with a minimum of hand labor. And who's to say that will end innovations at Melville?

PACKAGE DYEING machines of gleaming stainless steel boast capacity to nearly one ton of yarn per round. Here, operator reels off some yarn from a top package through a sampling port.

CONTROLLER for dye cycle makes it possible to reproduce the same dyeing conditions from lot to lot without guesswork. Here, Dyeing Superintendent Harry Winslow checks instruments.

PUMPS AND VALVES that produce and direct large volume of dye liquor (at 18-lb. pressure) are also the latest equipment. These pumps serve one of the 500-package machines.



CHEMICAL TREATMENT & FINISHING

Dyeing Yarn Where They Said Not To

The gloom-talkers say, "Stay away from New England if you're dyeing yarn." This company listens, instead, to its own advice: Take $250,000, buy the newest equipment, and stay put—right in friendly, busy New England.

OPTIMISM, they say, creates its own rewards. If the experience of Jacques Dubois, president and treasurer of JED Processing Corp., is any guide, that axiom is air-tight. Evidence? The gleaming array of new equipment that is pulling in finishing business so fast that JED management is now planning a third shift.

Dubois decided that Woonsocket, R. I., was the place to set up shop only after a good bit of thought. Other areas looked more attractive in some respects. But two primary factors kept interfering with any decision to move.

1. Proximity to the still-sizable New England woolen-yarn manufacturing industry.

2. The pull of long established roots in the area.

One other thing played a part in Dubois' decision, too: Overnight delivery to the New York market area is routine for this section of the country.

Dubois solved the question of quarters for the new plant by buying an old mill and modifying it considerably to provide a light, airy dyehouse area.

Already JED's business is growing fast enough to justify management's faith in the project. (And the dyehouse area is large enough for additional equipment.) As for personnel, operators are now being trained for additional shifts to keep existing equipment going around the clock.

Some of Jacques Dubois' confidence rubs off on you when he talks about his venture. He'll tell you that with modern equipment and know-how, there's money to be made in yarn dyeing in New England. But because he's a modest man, he won't mention that it also takes the kind of courage and faith in the future that haven't been too much in evidence in the textile industry in the area in recent years. In a word, optimism is a key element in the success of this yarn-dyeing plant.

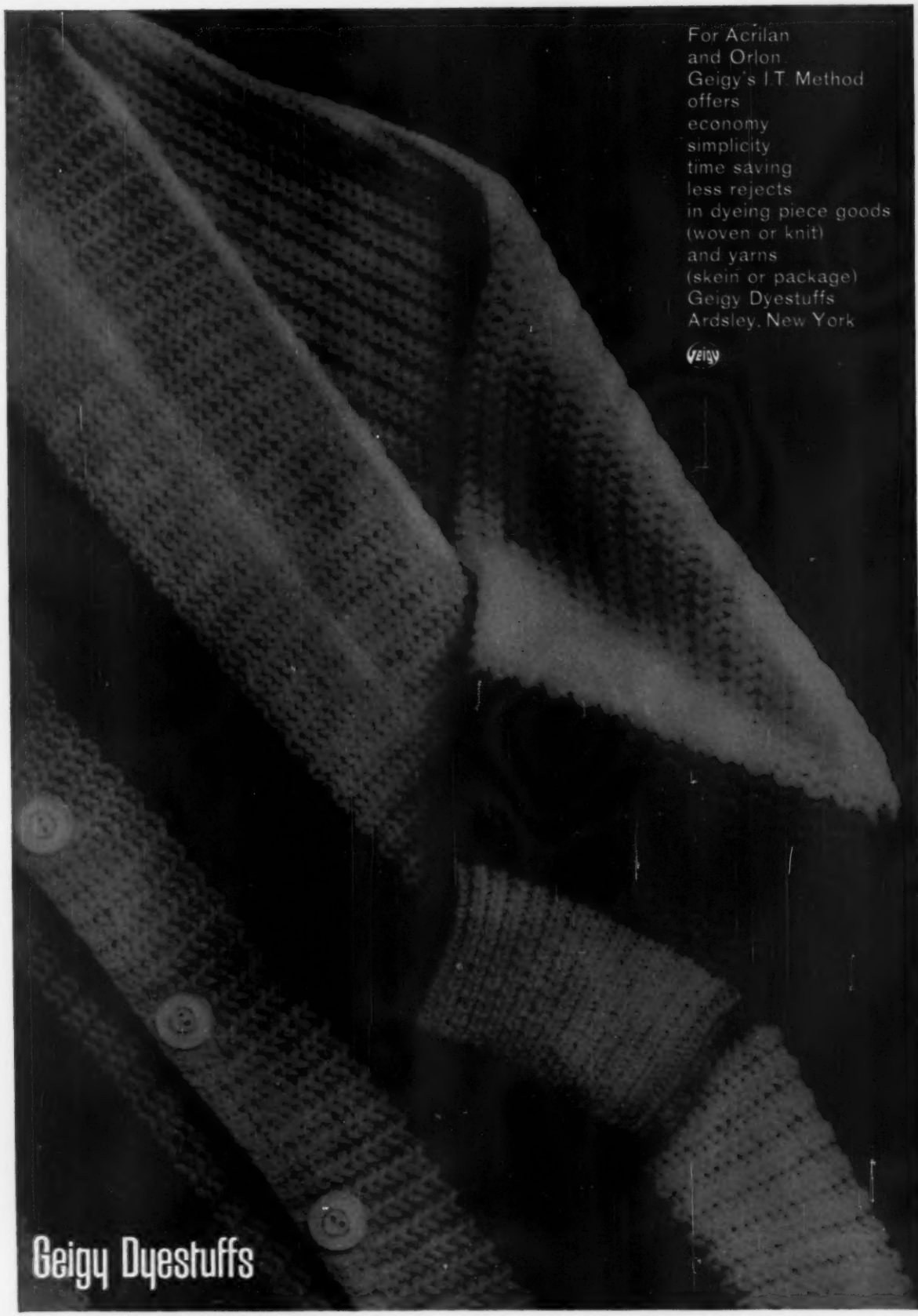
EQUIPPING THE PLANT

Here's how management went about creating its up-to-date plant:

First step was to tear out a floor to give full 32-ft. headroom. Then a skeleton of 12-in. I-beams was placed inside the walls to carry new roof supports and a 2-ton Load-Lifter hoist. The hoist is fully powered and its two-way carriage will spot the hoist to any point in the dyehouse.

Equipment for yarn dyeing (Morton Machine Works) includes two interconnected 500-package units, one 230-package machine, and two 24-package machines. Equipment is wholly of stainless steel. The laboratory boasts a single-package Morton machine that's used to establish formulas for production work (see center photo, facing page).

Adjacent to the dyehouse proper is the winding department. Here yarn received on cheeses is rewound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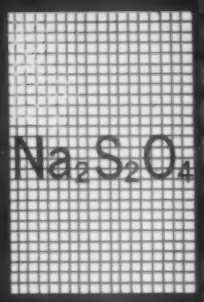

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on the stainless-steel, perforated tubes to prepare it for dyeing. Dyed yarn is also rewound onto larger cheeses if the customer wants this type of package. All work at this plant is done on a commission basis.

CONTROLLING DYEING

The dyeing operation is under automatic control insofar as is possible. The Taylor controls can be programed to provide the right initial dyeing temperature, rate of rise, dwell period, cooling rate, and rinse-water temperature.

A Flexapulse reversing control actuates a valve gear that provides inside-out or outside-in liquor flow to the package in process.

Dyeing is done on 1⅝-in. perforated tubes. Woolen yarns are dyed without stockings. For polyester yarns, a knitted stocking is placed over the tube. JED finds that the man-made-fiber packages are more securely held when wound on a stockinette base.

JEED's port dryer is supplied with temperature-controlled hot air from a U. S. Hoffman four-stage centrifugal compressor that supplies up to 20,000 cfm. of air. This great volume of air dries out the dyed yarns within 1½ to 2 hours—less than half the time usually required by older port dryers with less air flow.

STANDARDIZING CYCLES

Just now, JED is building up a library of shade formulas that can be used as accurate guides for repeat orders. These previous dyeings, all done under controlled conditions, are invaluable as reference points from which to build new shades.

A good share of the work going through today consists of 64s worsted yarns and 54s quarter-blood stock. The dyed yarn is used both for knitted and woven fabrics, mostly outerwear. The 64s are a blend of domestic and Australian wool.

In a typical dyeing procedure, the packaged yarn moves into the machine and gets a 20-minute scour in ¼ to ½% ammonia plus a like amount of synthetic detergent. This operation removes natural and added wool oils, and when it's completed, the bath is dropped. A fresh bath is set with ammonium sulfate, acetic acid, and a sequestrant.

For light shades, a leveling agent such as Irgalan DA may be included to slow up the initial strike of the dye. Acid or premetalized dyes are used extensively for many shades, and chrome dyes are added where extra colorfastness is needed. The dyes are added at various starting temperatures according to the shade and dye combination.

For example, with acid or premetalized colors, dyeing starts at 80 to 90 F. for light shades to insure thorough saturation with dye liquor before actual dyeing begins. Medium shades may be started at 120 F. and darker shades at 160 F.

In any event, the bath is raised to the boil in 45 minutes and stays at this point for 45 minutes. Then the lot is sampled for shade. If it needs more color, the load is cooled to 185 F. and dye is added. Temperature is then brought back to 200 F. or higher.

Good formulas and the savvy eye of JED's Superintendent of Dyeing Harry Winslow keep dyeing cycles down to about 2½ hours.

Finished shades move directly to the port dryer, where the tremendous volume of air available blows out excess water and evaporates entrained moisture. With this system, there's no time lost on extracting loose water in the dyeing machine.

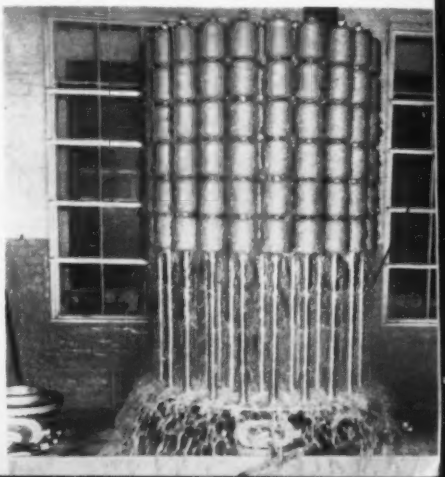
LAYING OUT MACHINERY

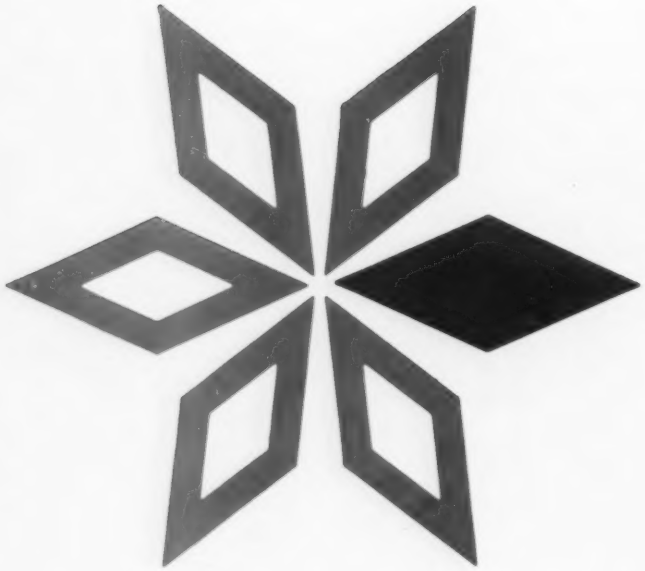
JED's layout of dyeing machines, boil-up station, and port dryer, plus the presence of the highly maneuverable power hoist, makes it possible for two men to run the dyehouse. Even color charges for dyeing machines are transported by hoist from boil-up stations to the tanks of the dyeing machines. Except for placing packages on the carriers and removing them, almost every phase of the operation is done with pushbutton controls.

POWER HOIST for speedy, efficient handling can pick up yarn carriers from any point in the dyehouse, deliver them anywhere. Four-way hoist motions are pushbutton controlled.

ONE-PACKAGE machine, which is used in the laboratory, is identical to production units. Dye formulas used on it are the same as used later on full-scale production lots of yarn.

DYED YARN gets the water blown out of it as the first stage in the drying process. There's no lost time extracting loose water from dyeing machine. It's immediately ready to go again.





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Now – Crease Resistance For Spun-Rayon Fabrics

Until recently, you couldn't get good wash-and-wear finishes on spun-rayon fabrics. Today, you can. Here is how you can build both wet and dry crease resistance into these goods.

PRESWELLING treatments may be the answer to one of your tough finishing problems—getting true wash-and-wear effects on spun-rayon fabrics.

One big problem with rayon (as with cotton) is to process the fibers so that they will resist crease formation in the wet state (for example, in spin-dry operations) and also, when wetted, will shed creases that formed in the dry state.

Research by chemists at Tootal Broadhurst Lee Co. Ltd. (British Patents 727881, -2, -8, and -9) and Courtaulds Ltd. (British Patent 813919) boils down to one main discovery: You must preswell the fiber before resin treatment if you want good results. This is not a new discovery. In fact, it has been known since 1928. But for some reason nobody has used the information until now.

HOW TO DO PRESWELLING

One approach to getting really deep-seated preswelling of the fiber is to treat rayon fabrics with alkalis, acids, or quaternary ammonium compounds.

In general, caustic alkalis are preferred. Caustic soda is effective, but you must control time, temperature, and concentration to avoid deterioration of the rayon. Caustic potash is less risky, but more expensive. For example, spun rayon fabric can be treated without tension in an 11% solution of KOH at 18 C. for an hour to get adequate swelling without undue effects on hand or tensile strength.

You can induce a fair amount of preswelling in spun rayons by immersing the fabric in a 3% solution of caustic soda for 1 hour at 20 C. But if you want maximum preswelling effect, you'll have to use stronger solutions of caustic soda. If you do this, you must add common salt to the preswelling solution. A satisfactory formula includes 8% caustic soda and 8% common salt. Fabric treated this way must be thoroughly washed and dried under as little tension as possible.

At this stage, the fabric will have two characteristics. It will extend about 20% in both directions when it is rewetted, and it will be extremely limp in hand when it is wet. (The goods will contract again when dried.) The fabric will also shed creases when it is rewetted, and will resist crease formation during laundering.

Table 1 shows the difference in wet crease-resistance of spun rayon fabrics that have been treated in an 8% caustic-salt solution compared to untreated fabric.

RESINS COMPLETE EFFECT

You must apply conventional urea-formaldehyde or melamine-formaldehyde resins to the pretreated fabrics to get both wet and dry crease resistance. You should aim at retaining the increased hydrophilic properties of the preswelled rayon as much as possible because they are responsible for wet-state crease resistance.

Resins make the fiber hydro-

TABLE 1

How preswelling improves wet crease resistance

Direction of crease:	Wet recovery from crease formed in wet state: Untreated Rayon fabric	Swelled Rayon fabric
Warp	80 degrees*	115 degrees*
Weft	78	115
Average of warp-weft	79	115

* The angle of residual crease. This is greater as the power of recovery from creasing is greater.

By A. J. Hall, BSc., F.R.I.C., F.T.I., F.S.D.C.
Textile Consultant
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phobic. For this reason resins are usually applied at lower concentration than is common on untreated rayons. You should also avoid tension during the resin application because tension may produce unwanted surface effects.

It is important to deposit the resins well within the fiber rather than on its surface. Afterwashing must be unusually thorough to avoid fiber embrittlement caused by residual surface resin. A recommended afterwashing is based on a 0.25% soap solution boosted with 0.25% soda ash, run at 70 C.

By careful control of the amount of resin used, and suitable afterwashing, you can retain the wet crease resistance produced by the preswelling treatment and the necessary dry crease resistance. Also you can obtain other effects, such as improved abrasion resistance or water repellency, at the time of resin impregnation.

You can obtain water repellency by adding reagents such as stearamidomethyl pyridinium chloride, octadecyloxymethyl pyridinium chloride, or the various silicone-based products.

If you use aluminum acetate as a catalyst for the resin, you can develop considerable spot-proofing if you steam-dry goods to produce the basic acetate or oxide of aluminum that you need.

You can give preswelled and resin-treated rayons any of the usual mechanically produced finishes (such as glazing or embossing on calenders) after drying but before curing the resin. For these processes the goods are usually handled so as to carry 15 to 20% moisture before calendering.

HERE ARE RESULTS

To see how three spun-rayon fabrics measure up in crease-resistance, look at Tables 2 and 3.

In Table 2, comparison of the crease-angle recovery of goods resin-finished without preswelling and goods that were preswelled and resin-finished shows that the preswelling treatment, which gives good wet crease recovery, hasn't affected the crease-recovery properties in the dry state, as shown in Table 3.

You can expect various degrees of crease resistance according to the resin that you use.

Acetal-type resins are suggested in British Patent 813,919 (to Courtaulds Ltd.). These resins are made by reacting one mole of acetone with four moles of formaldehyde in the presence of 0.1 mole soda ash for 5 hours at 25 C. The reaction is then arrested by cooling and diluting the solution. You can pad preswelled rayon fabrics in a 20% solution of this precondensate along with 0.5% soda ash as a catalyst, then dry and cure the goods for 2 minutes at 140 C. This finishing process will produce good drip-dry crease resistance.

You can overcome objections to the somewhat tricky business of preswelling rayon with caustic-salt solutions by a relatively simple steaming process. If you subject rayon fabric to saturated steam at 20 psi. or more, you will obtain a high degree of preswelling. You will get the same extensibility when wet and the same ability to develop dry crease resistance with resin finishes as when you do preswelling with caustic or other chemicals.

You can use melamine resins on preswelled resins to get equally good crease resistance, both wet and dry. A typical resin of this type is prepared by reacting 30 parts of melamine with 54 parts of 37% formaldehyde at pH 8.5 and 70 C. until the solution becomes clear, and then for 15 minutes more. Then 18 parts of 37% formaldehyde at pH 8.0 are added, and the heating at 70 to 75 C. is continued for another 15 minutes. The product is cooled, and to it are added 5 parts ammonium chloride and 15 parts of ammonia (sp.g. 0.88). Upon dilution to 100 parts, the precondensate is ready for use.

Preswelled goods padded in this resin to 100% pickup, dried at 60 C., and then cured at 150 C. for 10 minutes, are finally afterwashed in 0.25% soap, 0.25% soda ash, rinsed, and redried. In this case, preswelling is done in 8% caustic and 8% common salt. The crease resistance effect is said to be entirely satisfactory.

TABLE 2

Angle (degrees) of residual crease in standard test

	Untreated fabric		Resin-finished fabric without preswelling*		Preswelled and resin-treated fabric†	
Fabric	Warp	Weft	Warp	Weft	Warp	Weft
1	92	90	117	117	140	155
2	85	85	90	90	140	150
3	87	75	120	115	150	145

* Dry crease resisting only

† Crease shedding, wet crease resisting, and dry crease resisting

TABLE 3

Dry recovery (degrees) from creases formed in dry state

	Untreated fabric		Resin-finished fabric without preswelling*		Preswelled and resin-finished fabric†	
Fabric	Warp	Weft	Warp	Weft	Warp	Weft
1	60	47	102	81	97	97
2	74	59	106	102	102	97
3	74	70	110	97	106	102

* Dry crease resisting only

† Crease shedding, not crease resisting, and dry crease resisting

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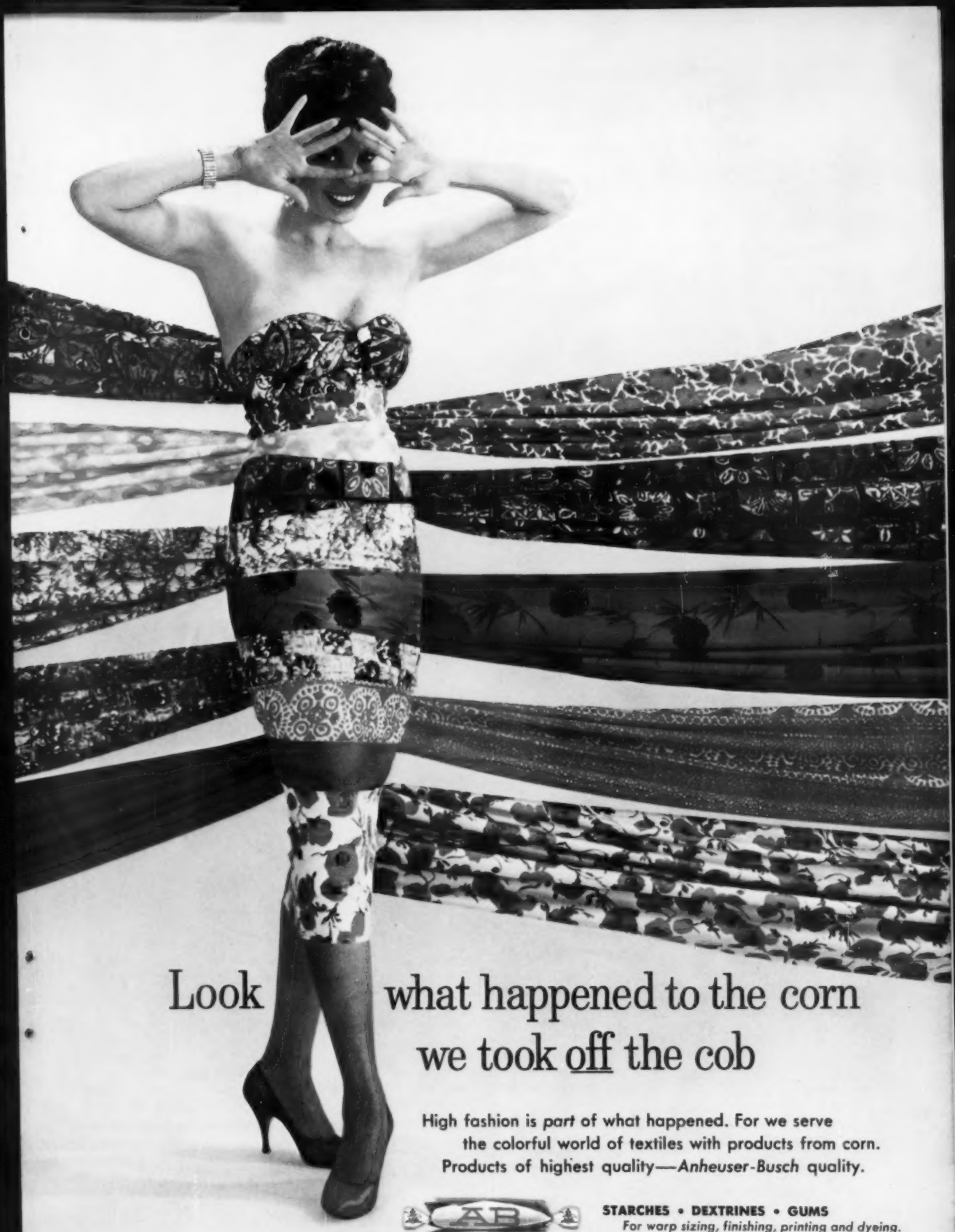


Look what happened to the corn we took off the cob

High fashion is *part* of what happened. For we serve the colorful world of textiles with products from corn. Products of highest quality—*Anheuser-Busch* quality.

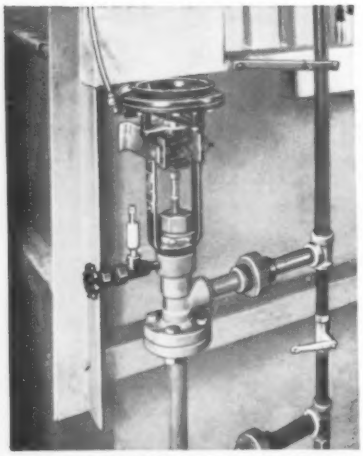
AB

STARCHES • DEXTRINES • GUMS
For warp sizing, finishing, printing and dyeing.

ANHEUSER-BUSCH, INC., Bulk Corn Products Division, St. Louis, Missouri

North Billerica Company reports:

"Foxboro's Concentration Control System cut our sulphuric acid consumption by 15%"–



THIS FOXBORO ALL-PVC NEEDLE VALVE is used in the acid feed line at North Billerica Company. Completely fabricated of chemically inert polyvinyl chloride, it cannot corrode.

System is completely automatic – requires no human attention

Sulphuric acid consumption cut 15% . . . perfectly uniform carbonizing of wool piece goods. That's what happened at the North Billerica Company in Massachusetts when they installed a Foxboro Concentration Control System on their carbonizing bath.

This Foxboro system consists of three components: a conductivity measuring cell, located in the acid bath; a Dynalog electronic Concentration Controller; and a Foxboro PVC Control Valve, located in the acid feed line.

Operation is simple. Operator sets desired acid strength on the controller and walks away. Foxboro does the rest — automatically and continuously feeding a smooth flow of acid to the bath. And control is maintained within .075% concentration (1/10° Tw).

Better uniformity — reduced chemical consumption — continuous chart records — you get them all when you install a Foxboro Concentration Control System. Ask your Foxboro Field Engineer to give you full details. Or write for Engineering Data 220-190. The Foxboro Company, 842 Neponset Avenue, Foxboro, Mass.

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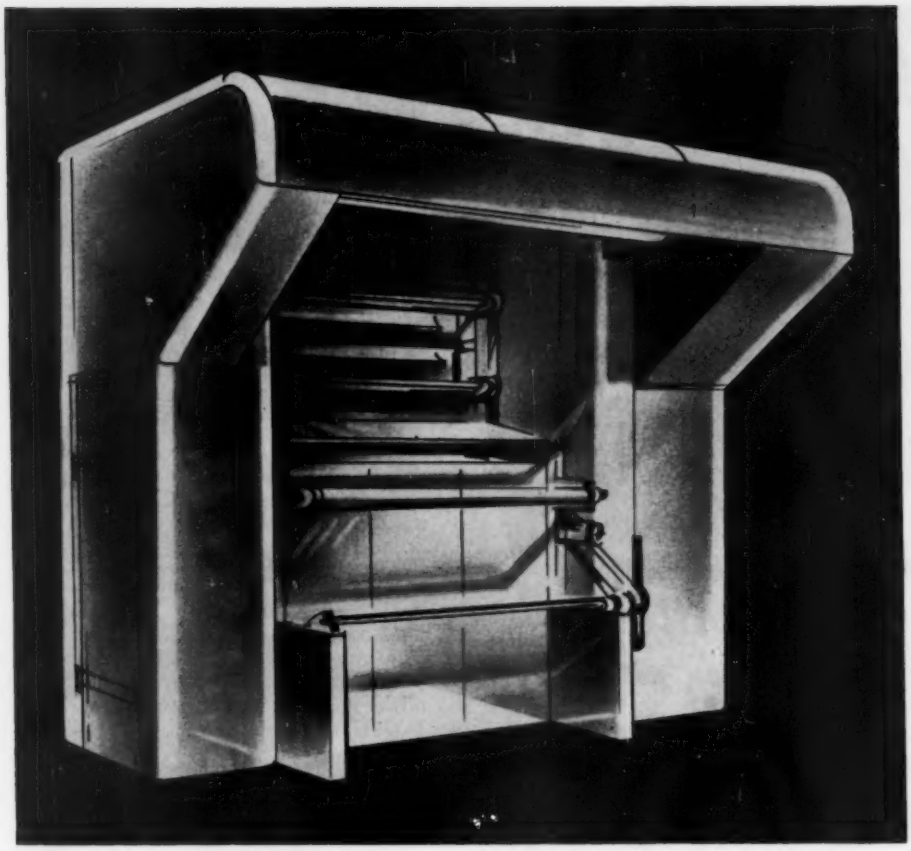

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Originally developed by "National" engineers in cooperation with leading hard-fibre processors. Used with unequalled success in the setting of all modern blends by leading mills in the United States and foreign countries. Provides the *ultimate* in efficient, economical operation and uniformity of set.

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No need to "suffer-through" frequent periods of downtime in a vain attempt to correct processing problems.

You can literally smooth out your runs — your fabrics — by installing Mount Hope Free-Wheeling Expanders. These mill proven, corrective devices automatically protect cloth — smooth out wrinkles, keep it distortion-free, held at full width.

Mount Hope Free-Wheeling Expanders have many applications — are equally efficient whether used for the most delicate fabrics or heaviest materials. It takes but a moment to complete the coupon below. It could well prove a most profitable first step toward final solution to your problems. Why not do it today?

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Please rush your Free-Wheeling Expander Technical Bulletin TEB-58, containing description, principles of application, specifications and typical installations.

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Laurel Emulsions

. . . first in conditioning and lubrication of both natural and synthetic yarns.

One of these—or another—Laurel Emulsion for natural and synthetic yarns will do a better job, with less work, at lower cost. There's one best emulsion in the Laurel Line to condition and lubricate any yarn . . . better.

LAUREL RUXITE A

. . . a quality lubricating and conditioning agent for cotton, wool, and synthetic spun yarns. Adaptable to rayon novelty yarns, it improves softness and running qualities. Forms highly stable emulsions with water.

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. . . especially prepared for tufting yarn producers. Restores rayon, cotton, or blended yarns to proper condition and imparts lubrication for better-running yarns. Easy to apply evenly, it's completely saponifiable for protection in scouring and dyeing.

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. . . truly cold water dispersible and excellent for winding trough work. For treating cotton, wool, Orlon and other knitting and sewing yarns, it is used at no sacrifice in active content where hot water is a problem.

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AHCOVEL* NW

The Reactant Softener That Withstands Repeated Laundering!

This unique, new reactant softener and lubricant imparts a soft, supple hand to wash-and wear cellulosic fabrics . . . is extremely durable to repeated laundering. Ahcovel NW is highly effective in minimizing the loss of fabric tear strength that so often occurs in resin treating and it appreciably increases the wrinkle recovery values of resin-treated fabrics.

Designed specifically for crease-resistance and wash-and-wear applications, Ahcovel NW is compatible with a wide range of resin precondensates and catalysts, providing perfect adaptability to numerous thermosetting resin bath formulations. Ahcovel NW is readily dispersible in COLD WATER!

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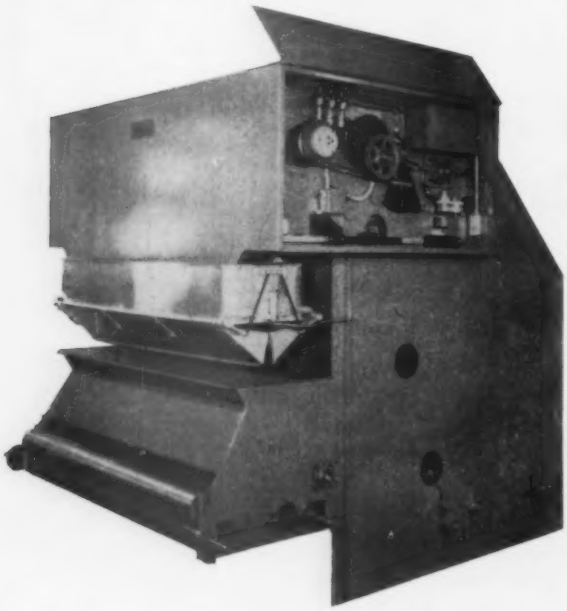
An accurate automatic **stock metering unit** that will handle **any staple fiber, natural** or **synthetic.**



This precise unit is available in 48 inch, 60, 72 & 84 inch widths. Dump to dump accuracy is less than 2½% total variation. This metering accuracy indicates the degree of opening accomplished between the comb and the apron pins. Rejected production is negligible. Simplicity of design makes this system extremely economical to operate and maintain.

Using this equipment, the result is a mat of stock, **uniform in weight and density** consistently to the feed rolls.

IT IMPROVES YOUR PRODUCT . . .
FACILITATES CONSTANT QUALITY AND
COST CONTROL . . .
REDUCES WASTE . . .

For more complete details of this equipment call or write:

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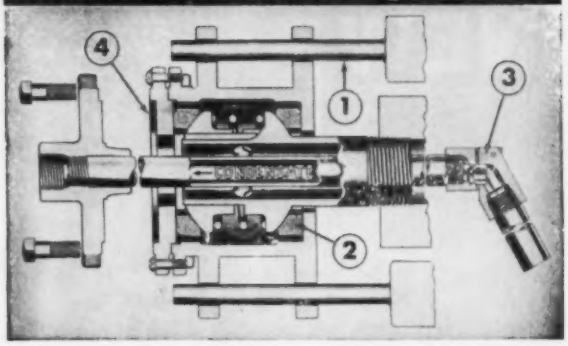

Type LJSP with Syphon Elbow

Johnson ROTARY PRESSURE **Joints** First in the Textile Industry

1. Support rods carry all the real weight. Sealing assembly "floats" freely inside. **2.** Seals without packing—needs no lubrication or adjusting. **3.** Syphon elbow replaces clumsy curved syphon pipe with two straight pipes, passes right through joint. **4.** Assembly plate holds parts in place when head is removed.

Write for Catalog J-2002

Shows Johnson Joints for all needs, on dry cans, print cans, calenders, compressive shrinkage ranges, 5' and 7' cotton slashers, etc.

THE JOHNSON CORPORATION
814 Wood St., Three Rivers, Mich.

CIRCLE 252 ON READER SERVICE CARD

CIRCLE 253 ON READER SERVICE CARD

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It will help us to keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

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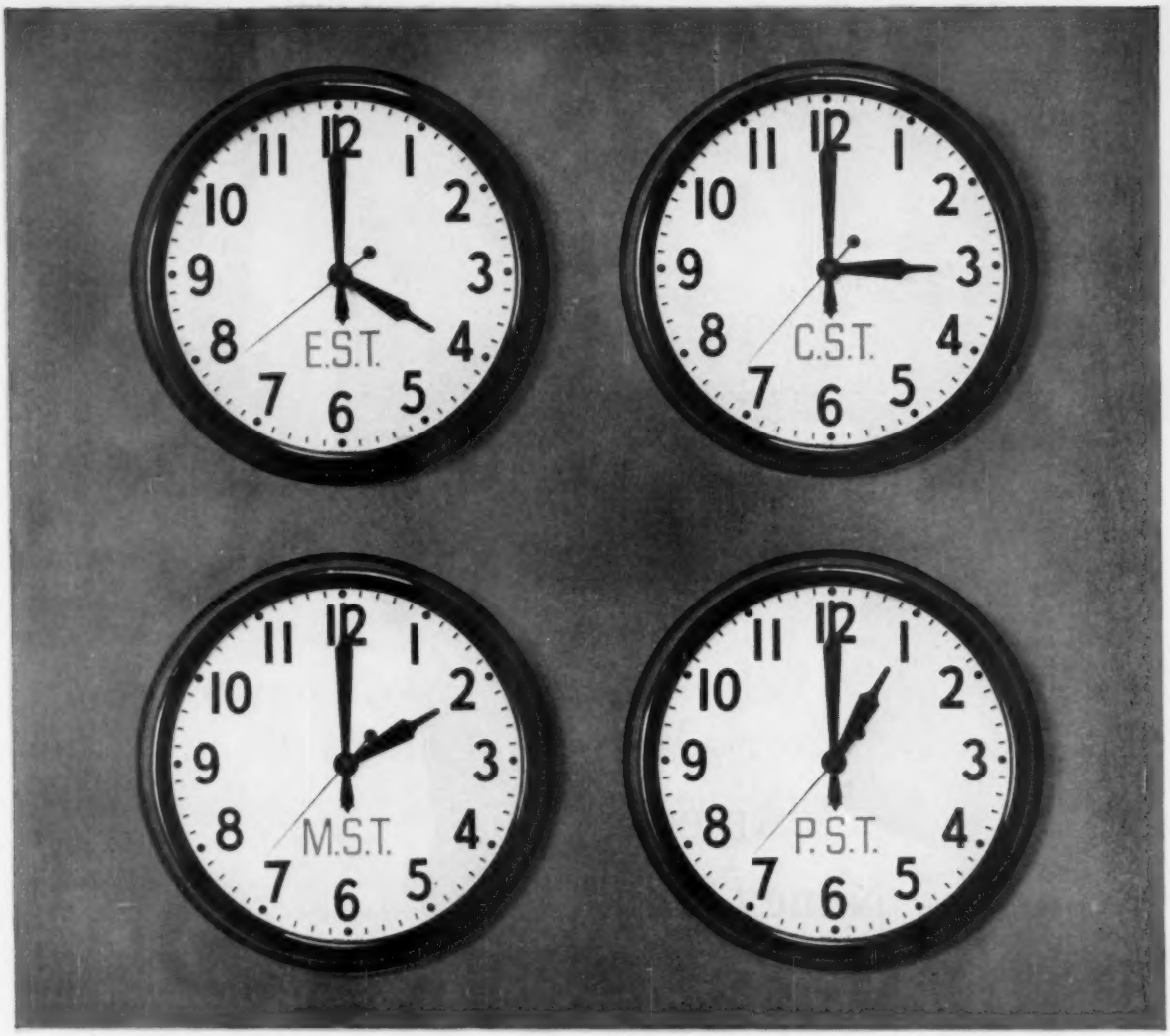

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Wherever your plant is located, whatever salt you need and whenever you need it, Morton, America's only nation-wide salt company, can provide you with the kind of salt and service to keep your brinemaking equipment working at top efficiency!

MORTON PUREX is a quality controlled evaporated grade of salt that is 100% soluble. Purex dissolves rapidly and uniformly, producing a clear, fully saturated brine at highest possible flow rates.

MORTON '999' is a high-purity evaporated salt. It is particularly suitable for use in de-alkylizing units.

MORTON ROCK SALT is economical to use and comes from many sources in a wide range of particle sizes. Morton can supply the grade best suited to your needs.

Mail coupon today for more information about the various grades of salt and the valuable service Morton offers the Water Conditioning Industry.

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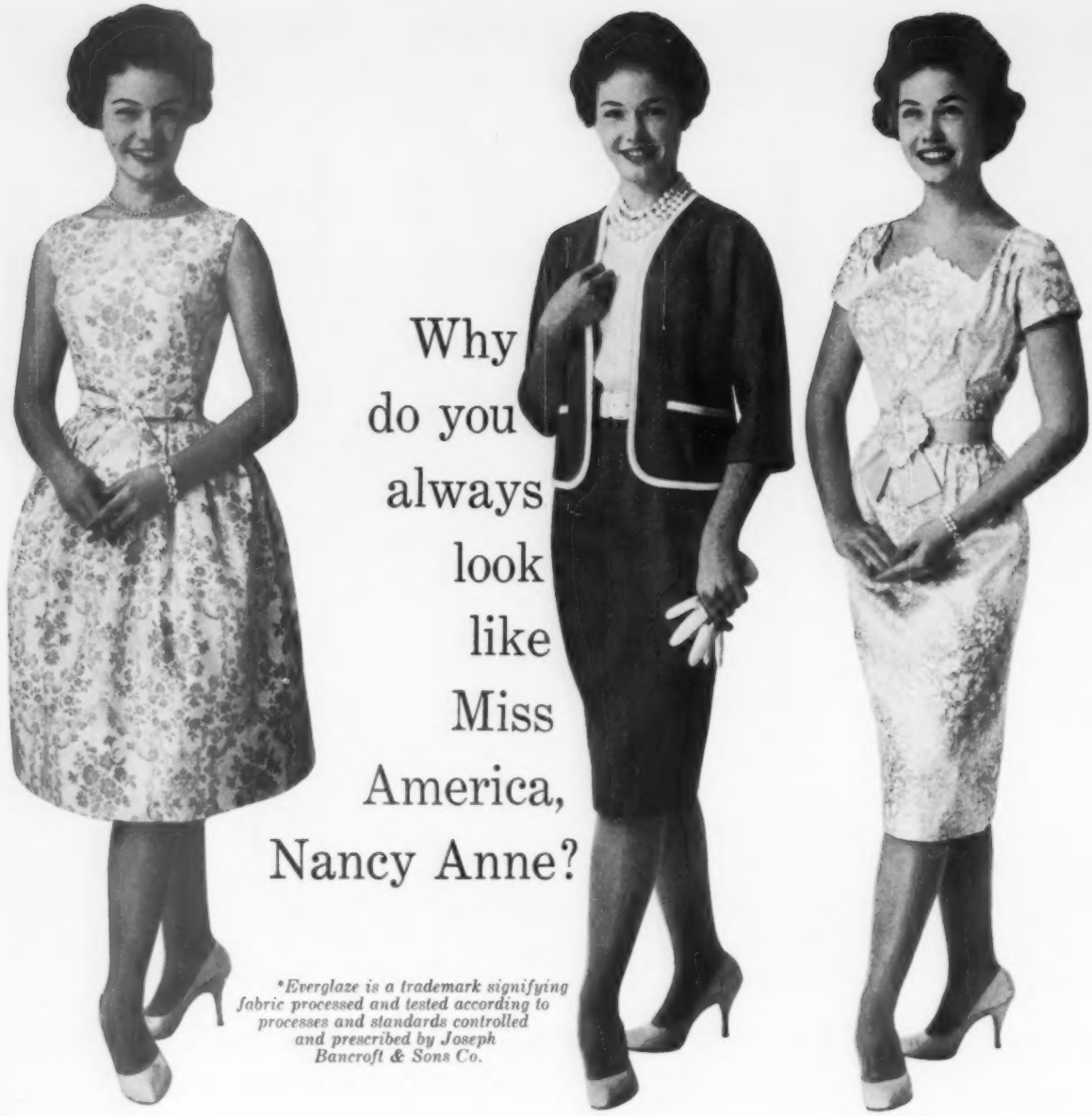

Why do you always look like Miss America, Nancy Anne?

**Everglaze is a trademark signifying fabric processed and tested according to processes and standards controlled and prescribed by Joseph Bancroft & Sons Co.*

One reason is the Rohm & Haas RHONITE® resin in these attractive *Everglaze fashions. RHONITE penetrates inside the textile fibers, reacts there to create crease-resistant crispness that stays fresh through hours of wear and repeated launderings.

The easy-care, wrinkle-resistance of RHONITE is perfect for Nancy Anne. People expect her to look like Miss America always, everywhere she goes, because she *is* Miss America 1961, Miss Nancy Anne Fleming.

Get technical information on RHONITE resins for wash-wear finishes, calendered effects, textured, and stabilized cotton, rayon, and blended fabrics by contacting your Rohm & Haas representative.

ROHM & HAAS

PHILADELPHIA 5, PA.

RHONITE

BULLETIN:

On August 27, 1960, Shell Chemical originated tank truck shipments of hydrogen peroxide in the South to save your company money regardless of its size.

If you are presently buying in drums, read how you can eliminate drum deposits and take advantage of low bulk prices on quantities of 1000 gallons or more.

If you're already buying in bulk, read how Shell Chemical's over-the-road delivery can lower your inventory costs and give you faster service at no increase in price.

THANKS to Shell Chemical, you can now buy hydrogen peroxide throughout the South at *tank car prices* and *over-the-road* convenience.

How drum users save

If you are presently buying 35% or 50% hydrogen peroxide in drums, you can save two ways.

Let's assume your current consumption is 40 drums a month of 35%. The immediate benefit from Shell's tank truck delivery is a $1600.00 increase in working capital by eliminating drum deposits. At the same time you will do away with the bookkeeping, handling and general nuisance of returning drums.

Major benefit: $4500 a year

But the major benefit, of course, is to give you low bulk prices *even if you don't have a railroad siding.* You can buy in quantities of as low as 1000 gallons a shipment. Again using 40 drums of 35% a month, your cash savings can amount to over $4500 a year. At this rate you could pay for excellent storage facilities in 8 months. Everything after that would be pure gravy.

How present bulk users save

Now let's assume you're already buying in bulk. What can Shell's tank truck delivery do for you?

First, it can free 1500 gallons of working capital every time you buy. Instead of taking 4000 gallons at a time, you can take 2500 *at the same low price.* Or you can take as little as 1000 at a very modest increase. Figure for yourself what this can mean in the course of a year.

Every part of the South

The second advantage to current bulk users is faster delivery. Even the most remote part of the South is within two days' drive from Shell Chemical's hydrogen peroxide plant in Norco, Louisiana.

Storage help from Shell

If you do not have storage facilities, you can buy the best on the market for about $3,000. Shell will help you with every step of the installation. That's part of the original tank truck plan as Shell conceived it.

For complete information, contact Shell Chemical's district office in Houston (CApital 2-1181) or Atlanta (JAckson 5-7621). Call today. The tank trucks are rolling. Let them roll your way with savings.

A Bulletin from

Shell Chemical Company

SHELL

Industrial Chemicals Division
110 West 51 Street, New York 20, N.Y.

CIRCLE 103 ON READER SERVICE CARD

the weaver's friend . . .

VICTOR MILL STARCH

Since 1898 experienced mill men have relied on the uniformity of Victor Mill Starch. They know that year after year Victor can be depended upon for better penetration, stronger warps, greater smoothness.

They have also learned to rely on Keever technicians. When mill problems come up, they know that Keever has the experience and facilities to solve them. Let them prove it to you.

KNOWN FOR UNIFORMITY FOR MORE THAN 60 YEARS

TEXTILE SALES DIVISION
118 South Pleasantburg Drive
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THE KEEVER STARCH COMPANY

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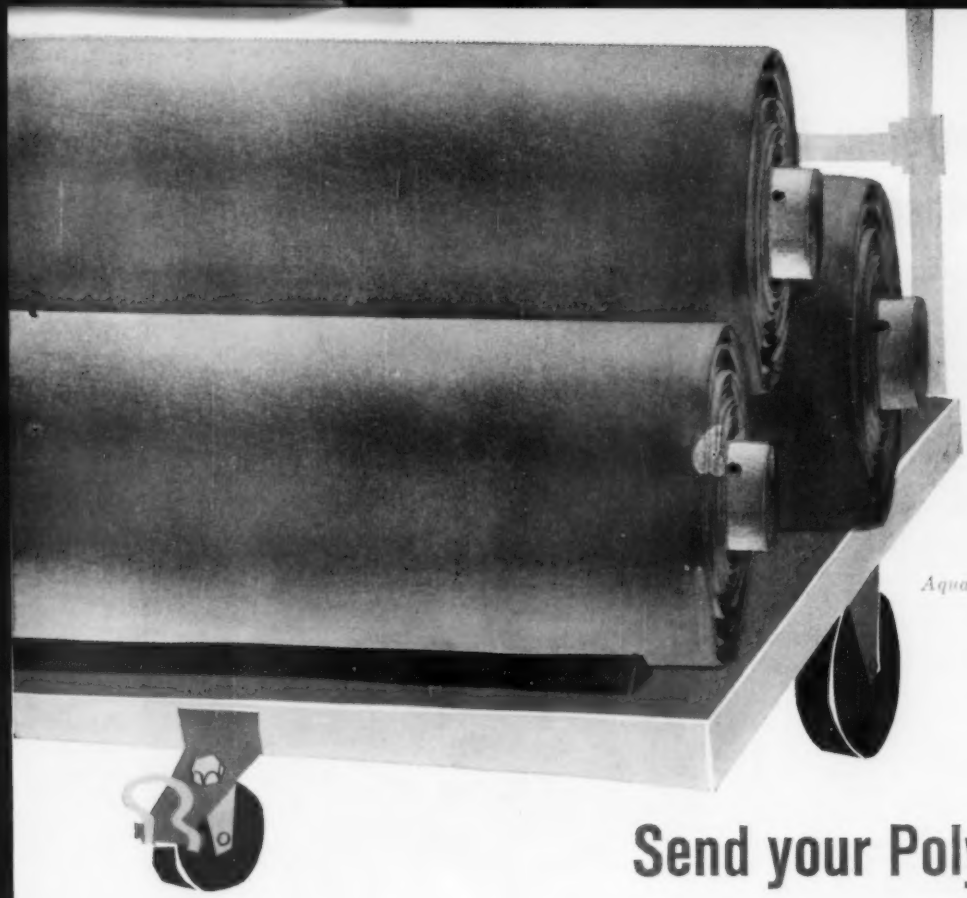

Send your Polyester Fabrics to market protected by the Outstanding Fastness of Eastman Polyester Dyes

Your Eastman representative will be glad to tell you about the performance advantages and economy of these dyes

Light shades, dark shades—as the demand for fabrics containing polyester fibers continues to grow, dyers are being called upon to deliver more shades, brighter shades, faster shades.

In step with this trend, Eastman offers an expanding series of polyester dyes, providing the best all 'round fastness characteristics of polyester dyes currently available.

Specifically developed for use with polyester fibers, these dyes exhibit outstanding fastness to washing, light, sublimation, crocking, perspiration, dry cleaning and wet pressing.

Equally important are their excellent processing characteristics...good build-up, good exhaustion and outstanding leveling properties.

Dyeing with Eastman Polyester Dyes is easily accomplished with carriers or under pressure at elevated temperatures. Fibers can be readily dyed as tow, tops, stock, or fabric. Fabrics of polyester filament can be conveniently dyed in jigs. Fabrics woven of spun polyester yarns alone or blended with cotton, viscose or wool can be easily dyed in dye-becks.

Get the full story of this outstanding line of dyes for polyester fabrics from your Eastman representative. Formulations and technical assistance on dyeing procedures are readily available.

Eastman Polyester Dyes

Eastman Polyester Dyes are sold in the United States by **EASTMAN CHEMICAL PRODUCTS, INC.**, subsidiary of EASTMAN KODAK COMPANY, in Kingsport, Tennessee; Lodi, New Jersey; and Greensboro, North Carolina. On the **West Coast** through WILSON & GEO. MEYER & COMPANY, San Francisco, Los Angeles, Portland, Seattle, Salt Lake City. In **Canada** through CLOUGH DYESTUFF CO., LTD., St. Laurent, P. Q.

* Try this formula on your next lot of aqua.

0.15% Eastman Polyester Yellow W
0.2% Eastman Polyester Blue GLF
3 g./l. of a suitable carrier
Material: Polyester
Bath Ratio: 30:1
Dyed 1 hour at boil

Polyester Yellow 5GLS
Polyester Yellow RL
Polyester Yellow W
Polyester Yellow 5R
Polyester Red B
Polyester Red 2G
Polyester Dark Red FL
Polyester Pink RL
Polyester Pink LB
Polyester Brilliant Orange 2RL
Polyester Blue GLF
Polyester Blue GR
Polyester Brilliant Blue 2RL
Polyester Blue 3RL
Polyester Blue BLF
Polyester Blue GB
Polyester Navy G
Polyester Violet R
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Polyester Black RB
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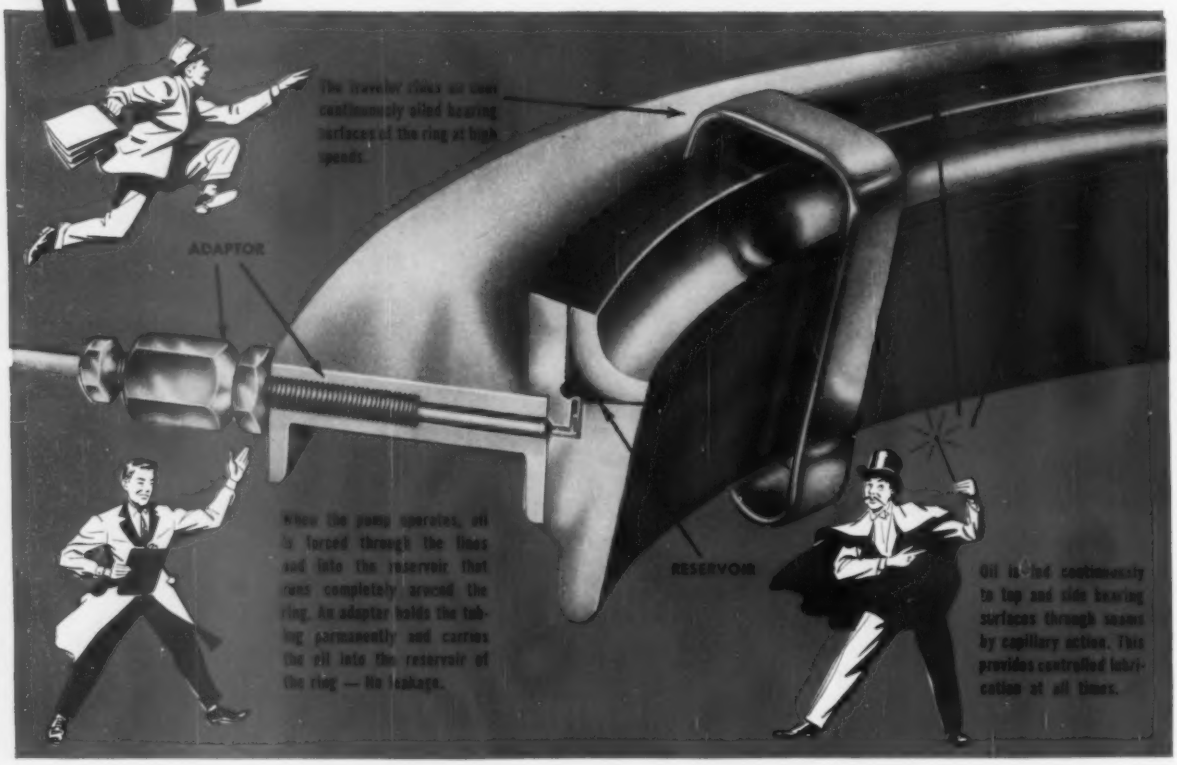
NOW Controlled, Automatic Pressure Lubrication Ideal When Used on "M" Type HERR Conical Rings!



Each stroke of the oil pump piston is timed to provide the minimum amount of oil to lubricate the path of the traveler. No excess or waste!

RESULTS:

1. Cooler operation of Ring and Traveler.
2. Provides longer traveler life.
3. Uniform tension of the yarn at all times due to adequate lubrication of the traveler.
4. Positive assurance of correct oil supply.
5. Faster operation possible.
6. Less ends-down.
7. Oil waste eliminated.
8. No oilcans, no dripping, no overfilling. No labor or supervision required.
9. Keeps costs down.

Always a step ahead, Herr "M" Type Rings are now designed for pressure lubrication from a centralized lubrication system. Oil cups have been eliminated. The oil is introduced through newly designed adapters directly to the annular supply reservoir. (This reservoir runs completely around the ring.) From this reservoir the oil moves continuously by capillary action through the top and side seams. This controlled lubrication assures just the right amount of oil to the traveler. Controlled lubrication because of the special design of Herr "M" Type Rings is entirely self contained. There is no excessive oil, no waste—no overflow of oil to coat other parts of the machine. It is clean lubrication insuring clean yarn without increased maintenance.

Write for complete information.

HERR MANUFACTURING CO., INC.
309 FRANKLIN STREET • BUFFALO 2, N. Y.

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES

How to Make a Fast Comeback

This old mill was jogging along on the edge of serious trouble. Production was out of phase, costs were high, equipment was doddering, and layout was like a Chinese puzzle. Here's how management made a quick turn-around.

NOT SO LONG ago, Mary-Leila Cotton Mills, Inc. (Greensboro, Ga.), faced an uncertain future. Production was 20% out of balance, machinery was old, competition was getting tougher, and quality left a lot to be desired. To management men at the mill, the future looked mighty dim.

Built before 1900, Mary-Leila basically consists of two two-story plants set side by side on different ground levels. The units are separated by a 25-ft. alleyway, and communications are maintained between the mill buildings and the various floors by enclosed passages, elevators, and steps—not a very inviting layout for modern textile manufacturing, to say the least.

Along with this awkward physical arrangement, the company had production problems peculiarly its own:

To keep the weave room running five days a week on Class C sheeting—the mill's major end product—the carding and spinning departments had to run six days a week. This meant that carders and spinners had to be paid time and a half for Saturday work, a big drain on the company's limited finances.

"Faced with these facts, we had the alternative of maintaining a status-quo position and be forced out of business by progressive competition, or we had to modernize," says C. E. Robinson, president and treasurer. "And as Mary-Leila is the principal industry and life blood of this community, we naturally decided to move forward. The problem was where to begin."

Management considered several plans, weighed each one carefully.

The most obvious way to break bottlenecks was to build an addition to one of the buildings and add more carding and spinning machinery. There was plenty of company-owned property for expansion. But building construction for this project alone would have cost $250,000—more than the management felt it could afford at the time.

Another thought was to connect the two buildings and put additional equipment in the space between. This idea was seriously considered—and probably will be carried out eventually. In this way, management can add considerable floor space at relatively low cost.

ANSWER: NEW EQUIPMENT

Ultimate solution to the problem of balancing production, uncurling the layout kinks, was almost too easy. Management simply bought compact high-speed equipment and installed it in available floor space after old equipment was removed or rearranged.

A major floor-space saving was made at spinning when management installed five narrow Whitin Standard warp-spinning frames in each bay in place of four old conventional frames. Twelve spinning frames came out from what is now the spooler room to make way for more modern spooling and warping equipment.

Another saving came at drawing, where 28 deliveries of Versa-matic equipment replaced 80 deliveries of old frames. Smaller savings resulted from rearranging machines in other departments.

Net result was a 20% production increase—enough to balance the operation—and no outlay for building construction. Biggest dollar saving was the elimination of overtime pay. Altogether, the mill is

SIMPLIFIED OPENING LINE has four beaters less than the old double line. Space beneath cleaners is now enclosed.

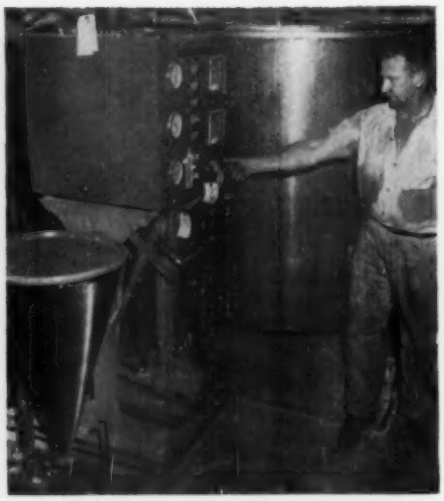
METALLIC CLOTHING has reduced neps 40% at the cards. Next improvement will be larger coilers.

DRAWING FRAMES being inspected by C. E. Birdsong, overseer of carding and spinning, run 330 fpm.

How Mary-Leila's New Equipment

STANDARD FRAMES (Whitin) produce 21s and 25s warp yarn. Work assignment is 20 sides, 2,760 spindles.

DOFFING has been speeded up by the use of special boxes and easy rolling casters. What's more, it's an easier job too.



STARCH CONVERTER (Staley) will pay for itself in three years or less. Cone-shaped container is a flash chamber.

FAST COMEBACK . . . *Begins on page* 107

saving about $100,000 per year in direct labor cost—about 10% of its annual payroll. Other less tangible benefits are improvements in quality. For example, yarn break factor has jumped from 1,700 to 2,200. Cloth appearance, too, is better.

The entire program cost about $750,000, and it should pay for itself in seven and one-half years from direct labor savings alone. No outside financing was necessary. All improvements were paid for out of past earnings except warp spinning, which is being leased.

Mary Leila processes about 10,000 bales of $1\frac{1}{32}$-in. Middling cotton per year into 500,000 yards of Class C sheeting per week. The company operates 767 Model E looms and 22,500 spindles.

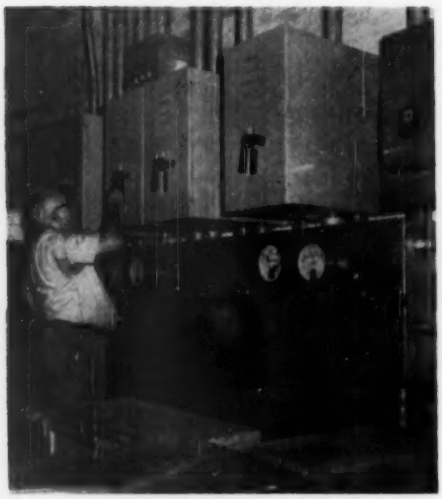
Although spinning was the major bottleneck which sparked the modernization program, it was necessary to make changes in practically every other department connected with yarn manufacture to get the mill in balance. Here's what was done:

OPENING—NEW LAYOUT

For a long time, it had been felt that opening-room stock was getting too much beating and that two lines of cleaning equipment were unnecessary. The old set-up was six Lummus blending feeders supplying a split cleaning line, each side con-

ROVING FRAMES have balanced production in this department. Here 0.90-hk. roving is produced for warp spinning.

Fits In



NEW SWITCHGEAR AND WIRING has been installed in the carding and spinning departments.

sisting of two No. 12 lattice openers in tandem followed by a Superior cleaner. This arrangement was replaced with a single line consisting of the same six blending feeders followed by a Superior cleaner, a Type B Axi-Flo cleaner, and a second Superior cleaner.

This new layout has cut out four beaters, decreased fiber breakage, and reduced fly. About ½% more stem and leaf are removed, and fewer good fibers are taken out. The change has contributed at least 100 points to the yarn break factor, and cloth appearance is better. Even more tangible benefits are represented by the elimination of the third shift that required two operators.

The revamped opening room produces 90,000 pounds of stock per week on two shifts. Opening machinery has a capacity of 1,800 pounds per hour, but 1,200 pounds per hour is sufficient for normal requirements. Middling $1\frac{1}{32}$-in. cotton is used, and 36 bales are laid down —six behind each blender.

The mill has made a couple of opening machinery modifications that contribute to better work. One is the use of a magnetic pulley for removing tramp iron instead of the usual hump magnet. The pulley is located at the end of the conveyor just before the cotton enters the first Superior cleaner. Cotton is preopened in this machine before it enters the Axi-Flo cleaner. No air passes through the Superior cleaner.

Waste boxes beneath the Superior beaters have been removed and replaced with a large waste receptacle located in the triangle beneath the machine. This arrangement gives better cleaning and makes waste removal easier.

The opening room is located in the cotton warehouse. This arrangement saves hauling bales to the mill proper and makes it handy to select and lay down bales for each mix. They have to be moved only a few feet from the warehouse into the opening room.

Opened cotton is blown through a pneumatic pipe to the picker room where it passes through a Lummus gyrator to the picker hoppers. When the hoppers become too full, flow of cotton is cut off automatically by switch at the feed table.

Three Kitson single-process, three-beater pickers, equipped with Aldrich synchronizers, are used in the next process. The management plans to take out the back beater—in line with beater changes made in the opening room. The pickers make a 16-oz., 40-lb. lap 45 inches wide—5 inches wider than the average lap. Heavier laps could be made, but these are considered adequate for present requirements.

CARDING—FEWER NEPS

The 64 45-in. cards now in use have been completely reworked and equipped with metallic clothing. Continuous strippers have been removed. Five flats have been added to each card. Lickerin wire has been changed from 4 to 5 points, and settings have been tightened up in most instances. These changes have reduced neps 40% and contributed to improved yarn break factor.

Prior to these changes, cards were ground every 10 days. Now, because very little grinding is needed, the card grinder has been given new duties: His primary job is to clean cards and check settings.

Two operators per shift run the cards at 11¾ pounds per hour to produce a 65-grain sliver. Doffer speed is 480 rpm. and cylinder speed 165 rpm. Coilers and cans are 12 inches in diameter. Present plans call for enlarging these in the future.

An oil spray was formerly used in the card room to keep down fly. However, the chemical tended to gum up the rolls on the new drawing frames and its use was discontinued soon.

DRAWING—NEW MACHINES

Eighty deliveries of old drawing were replaced with 28 deliveries of new Versa-matic equipment that runs 330 fpm. Old drawing ran 100 fpm. Half of the drawing is breaker and half is finisher. A 65-grain sliver is made at both of the processes.

The breaker drawing presents something of a temporary problem because sliver is pulled so rapidly from the 12x36 card cans that extra labor is needed for creeling. When larger card cans are put into use, it will be possible to eliminate one operator from the card room. At present, 1½ men are used on the drawing job.

ROVING—MORE OUTPUT

Mary-Leila has installed four new 14x6½, 96-spindle, Hi-Pro roving frames and continues to operate five 10x5 Inter-Draft frames with 106

FILLING BOBBINS are dumped through openings in partition between spinning and weaving departments.

OPEN BINS on the other side of the partition permit yarn to condition naturally in the weave room.

BOBBIN CHUTE speeds up movement of filling yarn to weave room located on floor below.

How Management Built in

FAST COMEBACK . . . *Begins on page* 107

spindles each. Production from these frames is greater than needed, but the extra capacity gives flexibility, which the mill formerly lacked.

The Hi-Pro frames are making a 0.90-hk. roving for use in 21s and 25s warp yarn. The other frames are on 1.32-hk. roving that goes into 19s to 31s filling. The .90-hk. roving is made with 146½ rpm. front-roll speed, 1.35 twist multiplier, and 680 rpm. flyer speed. Frames on 1.32-hk. roving operate at 137 rpm. front-roll speed and 650 rpm. flyer speed. Twist multiplier is 1.32.

SPINNING—NEW FRAMES

A major phase of the modernization program at Mary-Leila was installation of 40 new Whitin Standard warp spinning frames that run 20% faster than the old frames and hold nearly a bale of cotton in the creel. These frames have 276 spindles each, 2¼-in. rings, 3½-in. gage, ball-bearing spindles and cylinder, and antifriction bearings. Underframe motors are located so that the exhaust from Collectovac end collectors tends to cool them. On 21s and 25s yarn, front-roll (1 inch) speed is 153 rpm. and spindle speed is 10,500 rpm. For 25s, draft is 28 and twist multiplier 4.65. For 21s, the figures are 23 and 4.75.

Biggest quality improvement is the increase in break factor from 1,700 to 2,200—an average of 500 points. Part of this gain is due to carding improvements, but a big share of the credit goes to the new spinning frames. Ends down at present average 35 per thousand spindle hours, but the management confidently believes that the figure will be below 20 when the frames are fully broken in.

In addition to the 40 new warp frames, Mary-Leila reconditioned 56 204-spindle filling frames—10 more than formerly used. Spinning 25s filling, these frames run 152 rpm. front-roll speed, draft 19, and have a 3.75 twist multiplier. Quills were modified so that they hold 1.50 ounces of yarn instead of 1.25 ounces. This change permitted the elimination of one doffer per shift. Individual filling-frame production was not increased, but the additional frames added about 20% to over-all filling production.

Efficiency of the new warp spinning made it possible to increase work assignments from 1,632 spindles (16 sides) on the old frames to 2,760 spindles (20 sides) on the new frames. Work assignments for the filling frames were not changed. Spinners run 1,428 spindles (14 sides) and do all creeling and cleaning except roll picking. Manual cleaning is aided by Bahnson Cross-Jet traveling frame cleaners. Labor force in the spinning room was reduced from 30 to 27—a substantial improvement.

SPOOLING—20% BOOST

In the spooling department, an old 160-spindle spooler was replaced with a Barber-Colman Type C machine because the pockets on the old spooler could not handle the new 10-in. warp bobbins. The Type C machine produces a 9-in., 2½-lb. cheese, gives 20% more production with the same personnel than the old spooler. Special Fisher spring-bottom doff boxes supply the spooler instead of troughs, which have been removed.

Warping was improved by the installation of a revolving creel that can be loaded while the machine runs, and beam size was increased.

SLASHING—LOWER COSTS

A major improvement in the slasher room was the installation of a Staley high-temperature converter that is expected to pay for itself in three years or less by breaking down pearl starch in slurry form with high-pressure steam. It is estimated that ordinary starch cookers fail to break down 15 to 25% of the starch processed, whereas the Staley converter is said to be 100% effective. Pearl starch is about 60¢ per 100 pounds

WALL BIN below bobbin chute automatically drops bobbins into truck when the door is raised.

STRIPPED QUILLS are carried to spinning rooms in both mills by this conveyor, which splits in two directions.

QUILL BIN is located in passage between the two mills. Hopper is designed for fast feed-out.

New Handling Efficiency

cheaper than thin boiling starch, and Mary-Leila uses about 6,500 pounds of starch per week. Full capacity of the machine is not required, or it would pay for itself faster. Aside from direct savings in the cost of starch, another plus value of the converter is more uniform warps that run better at weaving. Two men per shift run the slasher room. Only two shifts are required under the present production schedule.

YARN HANDLING—BETTER

Yarn handling, especially filling, used to give Mary-Leila management considerable trouble. It took extra labor to get the bobbins to looms. On top of that, it was a problem to get the empty quills back to the spinning frames. One phase of this problem was solved like this: Openings were cut through a partition between spinning room and adjoining weave room. Open storage bins built on the weave-room side now are filled by dumping full quills directly from the spinning room through the openings in the partition. The doors on the spinning-room side are then closed to maintain proper humidity in each of the departments. One big advantage: Yarn becomes conditioned in the normal weave-room atmosphere—no special treatment is necessary.

Bobbins designed for use in looms on the ground floor are poured down a chute into bins built into the wall of the weave room. There, they are picked up by battery hands as needed. These two simple arrangements have cut out transferring bobbins from doff boxes to trucks and are saving one to two bobbin haulers per shift.

Warp bobbins are doffed into special spring-bottom boxes that go directly to the spoolers and serve as troughs. All handling and dumping of yarn between the spinning frame and the spooler has been cut out.

Bobbins are stripped on the floor below spinning and returned by conveyor belts to the two spinning rooms above. The conveyor splits at the first bin and a branch continues to supply the second bin located in a passageway between the two spinning rooms.

Except for the adoption of plastic shuttles a year ago, no major changes have been made in the weave room itself. Except for normal breakage, the new shuttles show little sign of wear. Another benefit: Plastic shuttles (because they are heavier) can carry the larger amounts of yarn without any ill effect on the boxing operation.

POWER—BETTER

When the new carding and spinning equipment was installed, it was necessary to rewire both of these departments. Old circuits were already overloaded to the point where they just couldn't handle the bigger motors. New spinning-frame motors, for example, are 15 hp.—twice the horsepower of the old motors.

All wiring is now beneath the floor and each circuit has its own conduit. No connectors are used beneath the floor. Completely new switchgear equipment was put in throughout the mill. Oil breakers were replaced with air breakers and new fuse boxes were installed. Old lighting was replaced with 90-watt fluorescent lamps throughout the mill. The mill now operates on 550 volts with a maximum of 1,800 amperes. Present requirements call for 1,300 amperes.

All of Mary-Leila's carefully calculated changes are paying impressive benefits. Nearly every machine in the mill is now arranged so that the operators in one department can move their stock a few feet into the next department without tangle or confusion. And it takes no extra help for material handling. Ease of handling is especially evident in the card room where nine operators on the first and second shifts and just six on the third shift run everything from picking through roving. In sum, production flow at Mary-Leila is still a long way from being straight-line. But it's at least a third faster than ever, and that's what's got management excited. Who knows what improvement will come next?

Southeastern Cotton, 1960—How It Stacks Up

Properties	Georgia						Alabama					
	1955	1956	1957	1958	1959	1960	1955	1956	1957	1958	1959	1960
Grade index	100	101	99	101	101	100	100	100	102	101	101	100
Staple length (1/32 inch)	33.3	33.1	33.5	33.9	33.4	34.0	33.7	33.2	33.0	33.9	33.5	33.4
Upper-half mean length (inches)	1.04	1.03	1.05	1.06	1.07	1.07	1.05	1.02	1.03	1.08	1.03	1.04
Fiber shorter than ½ inch (%)	....	....	....	....	....	4	....	....	....	....	....	5
Micronaire value	4.4	4.1	4.2	3.9	4.5	4.5	4.3	3.9	3.9	4.2	4.6	4.6
Maturity index	80	78	79	74	79	78	77	75	77	76	79	79
Fiber strength (1,000 psi.)	78	77	82	78	81	81	77	79	83	76	80	82
Manufacturing waste (%)	7.7	8.8	7.9	6.9	7.6	6.7	7.0	7.6	6.8	7.2	7.3	7.2
Neps (per 100 square inches of card web)	15	22	13	19	25	13	10	15	19	15	20	17
Yarn-appearance index	103	97	102	104	114	108	103	99	101	104	108	107
Average break factor	2,270	2,380	2,400	2,370	2,380	2,345	2,340	2,360	2,350	2,210	2,350	2,251

Properties	North Carolina						South Carolina					
	1955	1956	1957	1958	1959	1960	1955	1956	1957	1958	1959	1960
Grade index	98	102	98	101	96	100	95.8	97.6	100	100	100	100
Staple length (1/32 inch)	32.0	33.5	32.3	32.8	33.5	34.0	33.6	33.4	33.5	33.8	33.6	34.0
Upper-half mean length (inches)	1.02	1.05	0.99	1.02	1.05	1.07	1.05	1.06	1.04	1.03	1.05.	1.09
Fiber shorter than ½ inch (%)	....	....	....	....	....	5	....	....	....	....	....	4
Micronaire value	4.3	4.4	4.6	4.1	4.2	4.4	4.5	4.0	4.3	4.1	4.3	4.5
Maturity index	78	78	81	77	77	78	77	77	80	78	78	79
Fiber strength (1,000 psi.)	75	76	78	80	74	75	78	78	84	78	76	79
Manufacturing waste (%)	7.2	8.0	8.3	7.7	8.9	7.7	7.8	7.5	6.6	7.5	8.2	7.2
Neps (per 100 square inches of card web)	16	16	10	20	38	18	13	12	14	21	15	17
Yarn-appearance index	102	99	105	98	105	103	103	104	105	100	104	104
Average break factor	2,140	2,290	2,060	2,220	2,115	2,160	2,220	2,450	2,420	2,360	2,270	2,260

FIBER PROPERTIES of the 1960 crop are quite similar to those of the 1959 harvest. Breaking strength is off, and fewer neps are in evidence. In some areas, staple length is a little better. Grade—Middling—is about same as previous years.

Southeastern Cotton—Quality Fair, Production Off

THE SOUTHEASTERN early-season cotton crop in the two Carolinas, Georgia, and South Alabama compares favorably with previous crops in fiber and spinning qualities. The best spinning quality—as measured by yarn strength, appearance, and break factor—is found in Georgia. Average yarn break there is equivalent to that normally associated with cotton stapling $1\frac{1}{16}$ inches in length. In the other states, it is equivalent to cotton measuring $1\frac{1}{32}$ inches or less. All states average Middling in grade. Staple length is better in North Carolina, South Carolina, and Georgia this year than during any of the past five years. This finding is supported by Digital Fibrograph tests of upper-half mean length. Little change is observed in Alabama.

All states show an unusually low percentage of fiber shorter than ½ inch. And little difference is indicated in Micronaire values.

Maturity index of 78 or 79 is good this year in the Southeastern states. For the most part, card-web neppiness is also good for early-season cotton, which is reflected in yarn-appearance grades. Fiber strength and yarn strength indexes are low again in North Carolina as compared with the other states. Other areas held up well in 1960 except Alabama and South Carolina, which are slightly off in these properties. Georgia has the best yarn-break factor—and is the leader in most other respects.

While the Southeastern states produce cotton of fairly good spinning value (most of it is hand-picked), the area is now producing only about one-half as much cotton as it did 10 years ago. Farmers are finding that other enterprises are more profitable than cotton farming.

The number of actively operating gins has been greatly reduced, from about 2,500 to 1,500 during the last 10 years. The remaining plants are pretty well equipped to handle rough-harvested and machine-picked cotton.

By F. L. GERDES, Cotton Technologist U. S. Department of Agriculture, Retired, Leland, Miss.

Cleanest,
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ever developed...

New Model
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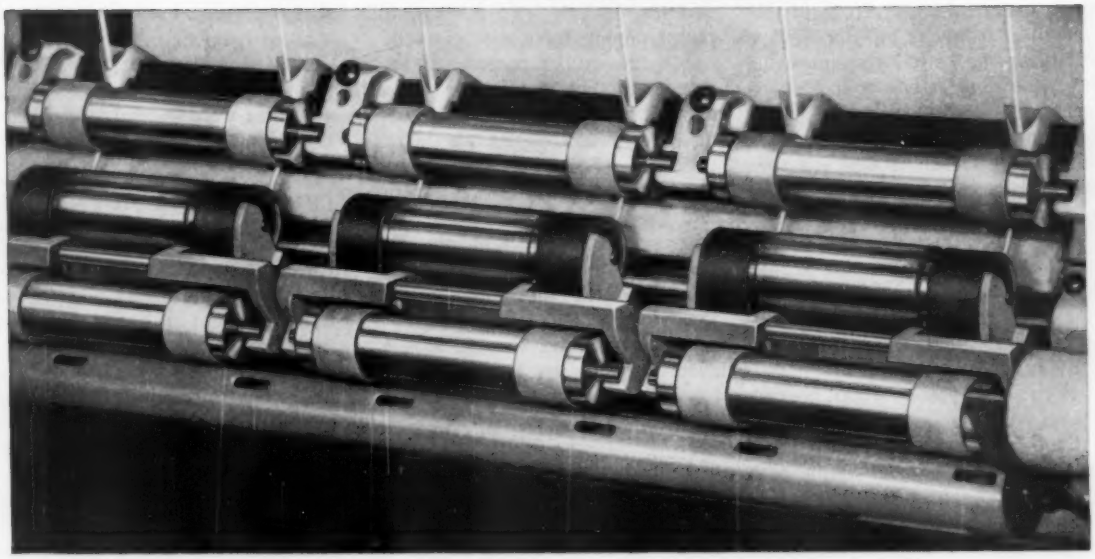

U. S. Patent No. 2,686,940

**Requires no lubrication in drafting zone —
Eliminates all conventional weighting equipment.**

Uses forces of magnetic attraction to produce required roll pressures — completely eliminates anti-friction top and bottom rolls, saddles, stirrups, levers, hooks, springs and weights. New, unique top front roll support allows quick "end around" piecing up. Due to few component parts, maintenance costs are reduced to an absolute minimum. Mills report that MAGNEDRAFT spins stronger, more even yarn with a substantial reduction in drafting gear wear.

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Putting Looms Back to Work

Solution to weave-room troubles begins with a clip board, a quick eye, and a bundle of sharp pencils. Then, once the superintendent has sized up his troubles, he can get weaves and fixers to follow through.

SAY YOUR weave-room efficiency is too low and your seconds are sky-high. Your weavers and loomfixers are busy, but you can't see the results of their work.

You've had loom-stop checks made by an observer from quality control or from the mill laboratory. But these checks tell you only what you know already—your department isn't running well.

Come up against a situation like this and you'll know that it's time to take charge yourself. It's up to you to make the checks now. After a few checks, limited to one or two sets of your worst running looms, you'll develop some method that you can pass on to a qualified observer—but he'll have to know weaving.

Here's how you go about making checks yourself:

Step 1—Record the pick-counter readings on all looms along with the time you started the check.

Step 2—Make your first trip around a set of looms. Watch for mechanical imperfections and record them. Look for things like crossed or slack harness cords, broken power straps, too-low lug straps, loose rocker-shaft bearings, end play in the lay, run-out quills, and too many pieces in quill boxes.

Step 3—Make a second trip around. Watch for bad quilling, tails, rough tips, wrong-type quills, and wrong-type feeler tips this time.

Step 4—Check the warp alley. Watch for crossed ends, ends without drop wires (riding too high), drawbacks on the beam, and similar warp defects. It's a good idea, too, to carry a flashlight on the last trip and look for kinky filling, snarls, stripped filling, broken filaments, misreeds, misdraws, shuttle marks, harness skips, broken picks, and jerk-backs. When approaching stopped looms, find out as fast as you can what caused the stop. Then check for loose reed cap, play in reed-cradle (backstay) pins, play in crank-arm bearings, worn pickers, rough box fronts, alignment of back box plates, damaged reeds, rough shuttles, rough or dull shuttle points, and pickers not centered.

Step 5—Make records of these defects so that you'll have a good over-all idea of just what the elements of your troubles are.

Step 6—Point out the defects to weavers and loomfixers. But present your criticism with finesse. Remember that these employees have their jobs to run, and it's usually nip and tuck for them to keep their jobs going. Therefore they don't always have time to look for defects that aren't clearly obvious.

HANDLING YOUR PEOPLE

Your best approach to weavers and loomfixers is to point out to them that you're helping them over their trouble spots. Give each employee only a list of the defects that you can reasonably expect him to correct that same day. Pass other defects to other shifts for correction. And above all, be patient. But have your foreman follow up and spot check your lists to make sure they're being followed.

During the study itself, follow your weaver. But be careful to stay out of his way. Don't use a stop watch because it will divert your attention from the actual weaving operation.

It's almost impossible to use a clip board, stop watch, pencil, and flashlight all at once. And it's useless to check time intervals without a rating factor. There's not enough space on a loom-stop form to record time. So if you need a timestudy, do it later, when you have a timestudy form at hand.

When your study period of one to eight hours is over, record the pick-counter readings again. Additional helpful information you can record: Number of looms stopped at the beginning and end of your study. Number of circuits weaver made. Number of looms restarted during each circuit. (Be sure, also, to indicate looms that were flagged, why they were flagged, and whether the loomfixer worked on them.)

SUMMARIZING FIGURES

When you are ready to summarize, express rates of stops as stops per producing-loom hour (loom hours $\times$ loom efficiency $=$ producing-loom hour).

Separate stops by totals for warp, filling, and mechanical. Then tally over-all stops. Break the stops down further by styles, filling lots, and warp lots.

Here's a typical study summary:

John Jones (weaver) made 25 circuits of his looms, two in warp alleys, and three in weaver's alleys with a flashlight. He restarted 54 looms, 2.16 per trip. Cycle time varied between two and ten minutes. Fourteen looms (66.7% of the set) ran less than 90% efficiency, he found.

Loom 109. Jerked-in filling. Flagged twice for rough shuttle. Box front rough. Picker riding lay.

Loom 113. Flagged for center loops and break-out.

Loom 114. Flagged for running out quills.

Loom 117. Washboard shuttle. Flagged for banging off.

Loom 120. Pick-shaft bearing loose. Slubbing filling on transfer.

With this sort of report, the loomfixer can go back to each loom that gives trouble and check it to be sure it's making good cloth. Give the loomfixer a copy of your

report so he can use it as his work sheet. Then when he returns it, your foreman can recheck the looms.

A two-hour, direct weaving study is not a random sample, and therefore it isn't representative of weaving conditions on a given set of looms for a whole shift, day, or week. It does, however, give a fairly accurate account of conditions as they existed during that particular period.

USING THREE FORMULAS

When you're evaluating the results of special studies on experiments that involve new yarns, preparations, finishes, methods, settings, or gadgets, a few simple statistical methods take out a lot of the guesswork. The following three formulas will help you evaluate most weaving conditions:

Formula 1: The weave-room overseer wants to know what his standard rate of stops should be on a certain style. Of course you can't answer that question from a couple of studies, but you can give him the range within which it should fall. From a few studies covering 706.2 producing-loom hours, say you come up with an average rate of 1.125 stops per producing-loom hour.

$$\sqrt{p'} = \frac{3 \pm \sqrt{9 + 4np}}{2\sqrt{n}} \text{ where}$$

p = observed stops per loom hour (1.125)
p′ = standard stops per loom hour desired
n = producing-loom hours (706.2)

$$\sqrt{p'} = \frac{3 + \sqrt{9 + 4(706.2)\,(1.125)}}{2\sqrt{706.2}}$$

$$= \frac{3 \pm 56.23}{53.14} = \frac{\sqrt{1.002}}{\sqrt{1.115}} = \frac{1.001}{1.052}$$

Therefore, the standard rate of stops (p′) should fall between 1.002 and 1.052 stops per producing-loom hour. This formula also may be used to evaluate new methods, preparations, finishes, etc. For this evaluation, compare the p′ of the control studies with p′ of the test group. If the p′ of the test group is lower than that of the control group, the test is significantly better. If they overlap, more studies should be made.

Formula No. 2: The weavers on Set 2 complain that the rate of stops is too high. They think they need a new pick rate or a reduction in the loom load.

Say a study shows the rate is 1.584 stops per producing-loom hour. The standard is 1.234. Looms studied are a set of 52 looms for 2 hours (104 loom hours) at 71% efficiency (the equivalent of 73.84 producing-loom hours).

$$p = p' \pm \frac{3\sqrt{p'}}{\sqrt{n}} \text{ where}$$

p = stops per loom hour observed (1.584)
p′ = standard stops per loom hour (1.234)
n = producing-loom hours (73.84)

$$p = 1.234 \pm \frac{3\sqrt{1.234}}{\sqrt{73.84}} =$$

$$1.234 \pm \frac{3.332}{8.59} = 1.234 \pm 0.387 = \frac{1.621}{0.847}$$

Therefore, the rate of stops may be expected to vary from 0.847 to 1.621. The weavers' complaint in this particular instance is not valid.

Formula No. 3: Several looms with the greatest number of stops during a study are thought to be "out of control." The stops during 2 hours on 32 looms are 57, with the average stops per loom 1.781. One of the looms had eight stops. Was this loom out of control?

C = C′ ± $\sqrt{C'}$ where
C = stops of looms observed
C′ = average stops per loom during the study

$$C = 1.781 \pm 3\sqrt{1.781} =$$

$$1.781 \pm 4.002 = \frac{0}{5.783} \text{ or } \frac{6}{}$$

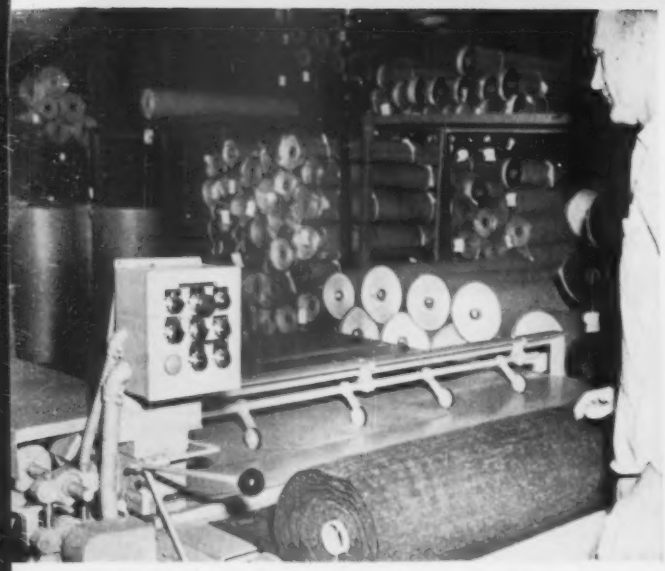
You can see that this one loom with eight stops was definitely out of control. And all looms in the set with more than six stops are considered out of control.

Maybe most of these stops are warp or filling. Still, the loom should be checked to see if mechanical conditions cause stops.

Using Code Letters to Speed Loom Studies

There's little room for notes on a standard loom-study form. That's why code letters will speed the task. The following code letters will cover most loom studies, and they'll be easily understood when you translate your notes into your summary.

BKE	Broken ends
BKF	Broken filling
BKT	Broken filling on transfer
CAB	Play in crank-arm bearing
CHFD	Chafed ends
CHS	Thread cutter hitting shuttle
C	Cracks
CKST	Checkstrap broken
CL	Center loops
DF	Dirty filling
DW	Drop wires
FC	Lay stops on front center
FLG	Flagged loom
FF	Fuzzy filling
FFK	Filling fork hit by shuttle
FL	Float
FT	Faulty bobbin transfer
H	Harness
HC	Harness cord slack
HK	Hang-knot
HM	Heavy mark
HSPR	Harness spring unhooked
FWST	Filling waste
JKF	Jerked-in filling
KF	Kinky filling
BNL	Box out of alignment
BO	Break-out (few ends)
BP	Broken pick
LM	Light mark
LO	Laying off
LOT	Laying off on transfer
LSB	Laying-sword bearing loose
LS	Loopy salvage
MD	Misdraw
MF	Mixed filling
MR	Misreed
NT	Not threading up on transfer
OIL	Oil on brake band
P	Bad picker
PCS	Filling pieces in box
PLA, PST	Picker riding lay
PSB	Power-strap broken
PSBR	Pick-shaft bearing loose
R	Picker stick broken
REV	Reed
RM	Magazine revoking
KOQ	Reed mark
LB	Knocking out quills
LE	Lint balls
LL	Loose ends
SHB	Power-strap low
SHE	Shuttle bouncing
SLB	Shuttle eye loose
SLE	Filling slubs
ROQ	Slack ends
RS	Running out quills
S	Rough shuttles
SM	Snarls
SP	Smash (many ends)
TC	Shuttle point rough
	Temple thread cutter not cutting
WB	Washboard shuttle
WS	Drop wires swaying



NEW WAY: Pushbutton and lever controls. One operator can handle 1,500 pieces per shift. Quality of wrapping is high.

OLD WAY: Hand wrapping and tying. Large rolls require two wrappers. They can wrap 400 pieces a shift.

New, Easy Way to Wrap Rolls Boosts Production 300%

ALTHOUGH packing and shipping equipment is in wide use, the wrapping of tubed fabric has continued as a slow, manual operation. But the introduction of the Dyken D70 Speedwrap machine, which the Sanco Piece Dye Works (Phillipsburg, N. J.) recently installed, makes this operation automatic (see photo, above).

The machine is simple in operation. Yet as Sanco's mill manager says, it out-performs hand wrapping four to one. Paper is purchased in a roll rather than cut sheets. This alone represents considerable savings. But the machine delivers an exact length of paper equal to the width of the roll being wrapped—36, 38, 40 inches, etc. This means even more savings.

Glue goes on automatically as paper is delivered. A transfer roll set in a reservoir puts glue on the far edge of the paper. When the correct length of paper has been delivered, the machine cuts automatically. During this time the operator places a new roll into position for wrapping. Previously, he started the paper delivery operation with the touch of a button.

Once the operator places the piece of fabric on the rubber-covered rollers, he presses a hand or foot control. This moves the paper, perpendicular to the way it was delivered, into an open flap on the fabric roll. By further depressing the same lever (which moves the paper), he starts the rubber-covered rolls rotating and wraps the material. One revolution is enough to seal the package. The operator then pushes a button to stop rotation, and at the same time (using another button within fingertip reach) starts delivery of a new length of paper. As he puts away the wrapped roll and picks up another piece, the cycle is repeated. It takes about 14 seconds to wrap each roll.

An automatic-reset timer controls delivery of the right length of paper. The length of paper is proportioned to the length of time the delivery rolls run. This way, the operator adjusts the paper length in a matter of seconds. With the Speedwrap, the wrapping cycle is less than 6 seconds, and the cost for paper is about 4¢ per piece wrapped.

The wrapper operator can handle 200 rolls per hour. For a dyeing or finishing plant that makes up to 1,500 pieces of tubed goods per shift, this means that one wrapper can do the whole job.

The quality of the wrapped piece is also a point of interest. The paper has been introduced into the flap of the fabric so there is little chance of the piece slipping out of the wrapper. Because the paper is glued continuously along the edge, a more rigid package is produced with lighter-weight paper than with a roll tied with two strings.

In the Sanco installation the machine is conveniently placed in the wrapping area. But Sanco plans to make the wrapper an integral part of the shipping-room operation. This will include feed and removal conveyors plus streamlined material-handling equipment, which will increase production per man hour.

POWELLFUL PERFORMANCE!

In creating their modern wonders — the chemical and process industries are the miracle makers of the 20th century. And in this magic crucible, Powell valves are used to control the flow of corrosive fluids—acids, alkalies, organic solvents, and gases . . . even under the most severe conditions.

Powell corrosion-resistant valves can be depended upon for long uninterrupted service and with little or no maintenance. Always rely on Powell valves for freedom from contamination of the end product.

Call the Powell valve distributor in your city or write The Wm. Powell Company. Powell's 115 years of industrial valve manufacturing experience are at your service!

150-pound Stainless Steel Globe Valve. Outside screw rising stem and yoke. Fig. 2474. Also available with flanged ends—Fig. 2475. Sizes ¼" through 3".

150-pound Stainless Steel Gate Valve. Outside screw rising stem and yoke. Figs. 2453SG (Solid Disc), sizes 2½" through 8"; and 2453DG (Double Disc), sizes 2½" through 8".

150-pound Stainless Steel Swing Check Valve. Bolted Cap. Screwed end—Fig. 2341. Can be supplied with flanged ends—Fig. 2342. Sizes ¼" through 2".

115th year of manufacturing industrial valves for the free world

POWELL CORROSION RESISTANT VALVES

THE WM. POWELL COMPANY CINCINNATI 22, OHIO

TEXTILE WORLD . . . COST CUTTERS

Milling Machine Trims Costs 35%

This Cincinnati milling machine is one of the most useful machine tools in the machine shop at Albany Felt Co., Albany, N. Y. It has a complete hydraulic control system and automatic feeds, including 16 spindle speeds, ranging from 25 to 1,500 rpm.

The machine has cut labor costs 35% on many routine shop jobs. Payoff on this machine was especially fast because Albany has a cost-control procedure to record labor required for each job.

For the weave room, this machine quickly cuts keyways in loom crankshafts. It also machines temple parts and cuts spiral and spur gears.

For spinning frames and drawing frames, it machines and splines delivery rolls. The machine also has an end-feed rotary table.

One Girl Takes Place of Four

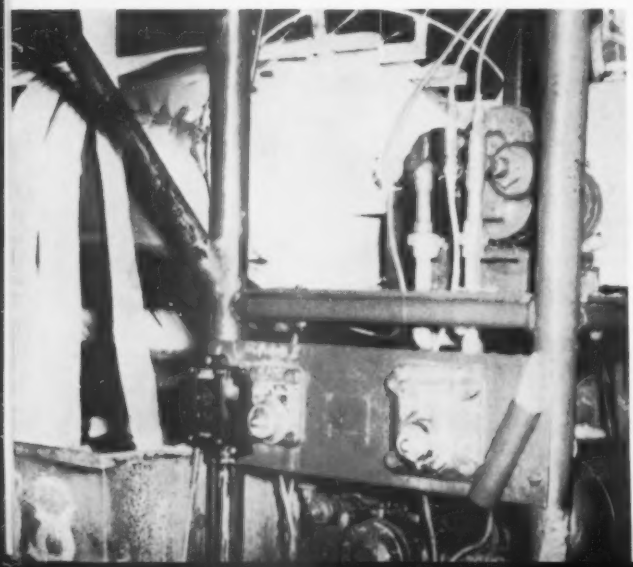
Substandard hosiery is mended at 2,500 stitches per minute at Durham Hosiery Mills, Durham, N. C.

Old way was to mend the stockings semiautomatically on forms.

But now one girl can do the work formerly done by four with this Speed Lock mending machine. The machine picks up and quickly mends a long run in a stocking. (These stockings are sold as substandard.)

The motor is entirely inside a single casting. This arrangement eliminates need for maintaining the machine. The operator regulates the speed by a foot control, which also starts and stops the stitches accurately.

For its many styles of hosiery in many deniers and gages, Durham adjusts a pressure-control system in just a few seconds to change settings.



Hydraulic Drive Cuts Time in Half

Hydraulic drives on dyebecks are cutting loading and unloading time 50% at Sanco Piece Dye Works, Phillipsburg, N. J.

The drive was designed and built at the plant's machine shop.

It is almost infinitely variable in speed and is smooth in operation.

The power pack includes an electrically driven oil pump that provides oil under pressure to the hydraulic motor, which is geared to the beck reel shaft.

With this type of drive, Sanco can also regulate the speed of the reel during the entire dyeing operation. This feature is valuable where lots of different weights or piece lengths are being handled. Rate of turnover can be regulated to suit the amount of goods at hand.

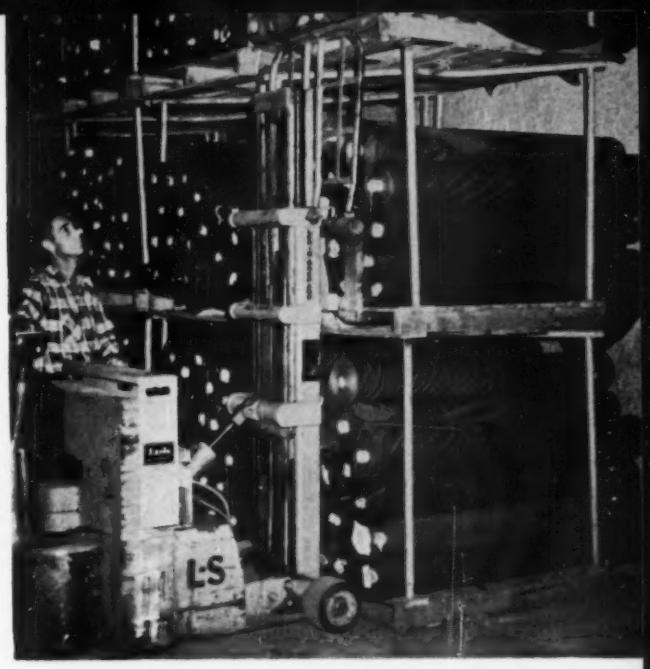
Cuts Warehousing Costs 40%

Thomson Co., Thomson, Ga., is realizing savings of 40% (or about $7,000) annually in its handling, storing, and selection of piece goods. The plant installed Tier-Racks, made by Tier Rack Corp. (122 N. 7th St., St. Louis, Mo.) to make these savings possible.

Goods were formerly piled in stocks on the warehouse floor. Now, each lot, style, and shade can be palletized and contained in an easy-to-handle group.

Pallets are made to fit inside formed guides on top and bottom of each Tier-Rack. The racks stack easily and are moved about by a Lewis-Shepherd electric fork-lift truck.

Warehouse space is 100% usable to the ceiling with this system. Labor required to pull out specified lots is a fraction of what was needed under the old method.

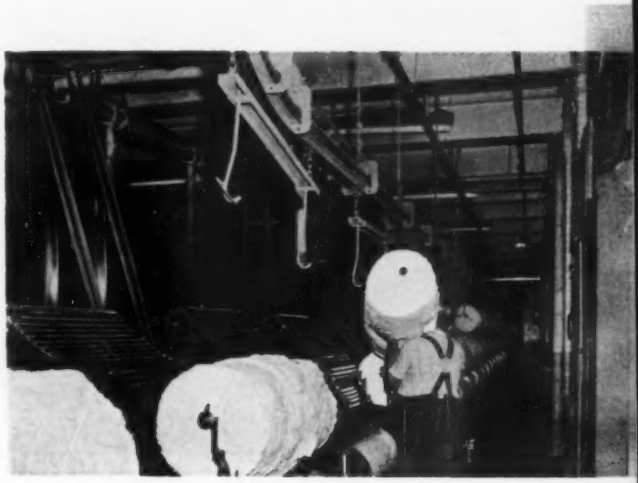


Saving $10,000 on Laps

Hauling laps by hand? Then you'll be interested in the way Beaumont Div., Spartan Mills, Spartanburg, S. C., handles laps between the picker and card rooms—and saves $10,000 a year in direct labor cost.

Laps formerly were pushed from the picker room to the card room on trucks that held six laps. Three trucks (one per shift) and three operators were required to keep the stock moving. The work was hard. Often, laps were damaged in transit.

Now picker-room operators load the American Mono-Rail conveyor shown here with little manual effort, and the system hauls laps to the card at the rate of 240 units per hour. The equipment is expected to pay for itself in 2½ to 3 years. Yarn quality is better because of less handling and less trash in the work.



Card Drive Cuts Cleaning Costs

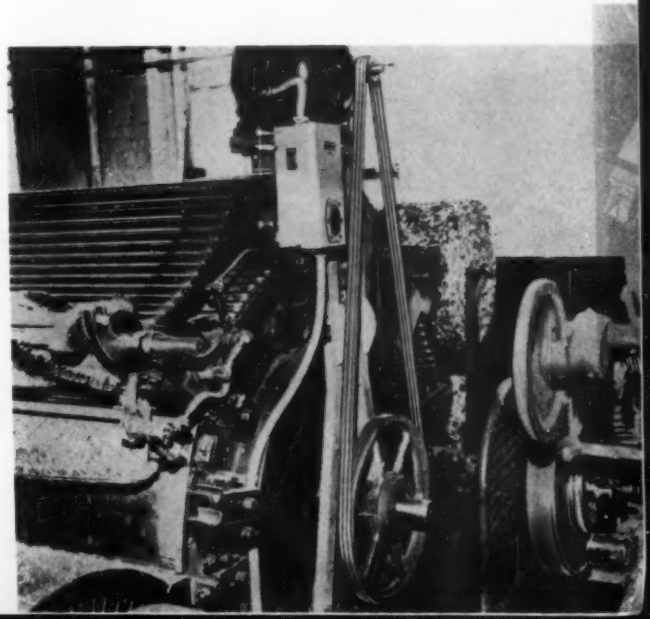
An individual card drive installation that started out as an experiment on one card soon skyrocketed into 87 new card drives at Canton Cotton Mills, Canton, Ga.

Biggest cost saving is in cleaning. Formerly, line shafts had to be blown off daily. But since line shafts have been eliminated, all this cleaning is also eliminated.

Eliminating the shafts also made possible another cost saving at Canton. Lap conveyors are being installed along with the individual card drives (Gates Super HC v-belt drive). This way, labor costs have been eliminated for this material-handling job.

With lint-collecting line shafts gone, visibility is improved, a potential fire hazard is reduced, and the card room is much cleaner.

. . . Turn the page



Trims Tape-Cutting Cost $1,500

China Grove (N. C.) Cotton Mills Co. is saving money by cutting its spinning, spooling, and twisting tapes on a Nicholson automatic tape cutter.

Assistant Superintendent Ashley B. Roberts says:

"We estimate a savings of $1,500 per year in tape-cutting cost. Tape cutting for spinning, twisting, and spooling in our three mills now requires about eight hours per week. When spindle tapes were cut with a manually operated device, the operation required 30 to 40 hours per week. And more important, we attain better quality yarn with better strength because of more uniform spindle speeds."

The automatic cutter has a pre-determining counter and knock-off. The machine needs no attention after a variable tension device is set.

Cutting Samples Twice as Fast

A hydraulic clipping machine for cutting carpet samples (United Shoe Machinery Corp.) has increased the output of one man 100% at American Carpet Mills, Cartersville, Ga. And besides, his work is now easier and more accurate. Every sample is cut smoothly.

Every time American tufts a new carpet pattern, it cuts samples for its salesmen and customers. Therefore the sample department has become a big department with several employees.

The clipping machine die-cuts round, square, or rectangular samples, whichever is needed at the moment. It's easily set up, and samples are cut at one stroke of the machine when a lever is pressed.

The sample department is parallel to the inspecting area at the mill so that little time is lost in obtaining samples.

Duplicator Eliminates Cost of Mistakes

A Telautograph machine transmits color-mixing orders at Kerr Bleaching & Finishing Works, Concord, N. C. Result: faster, more efficient production, all along the line.

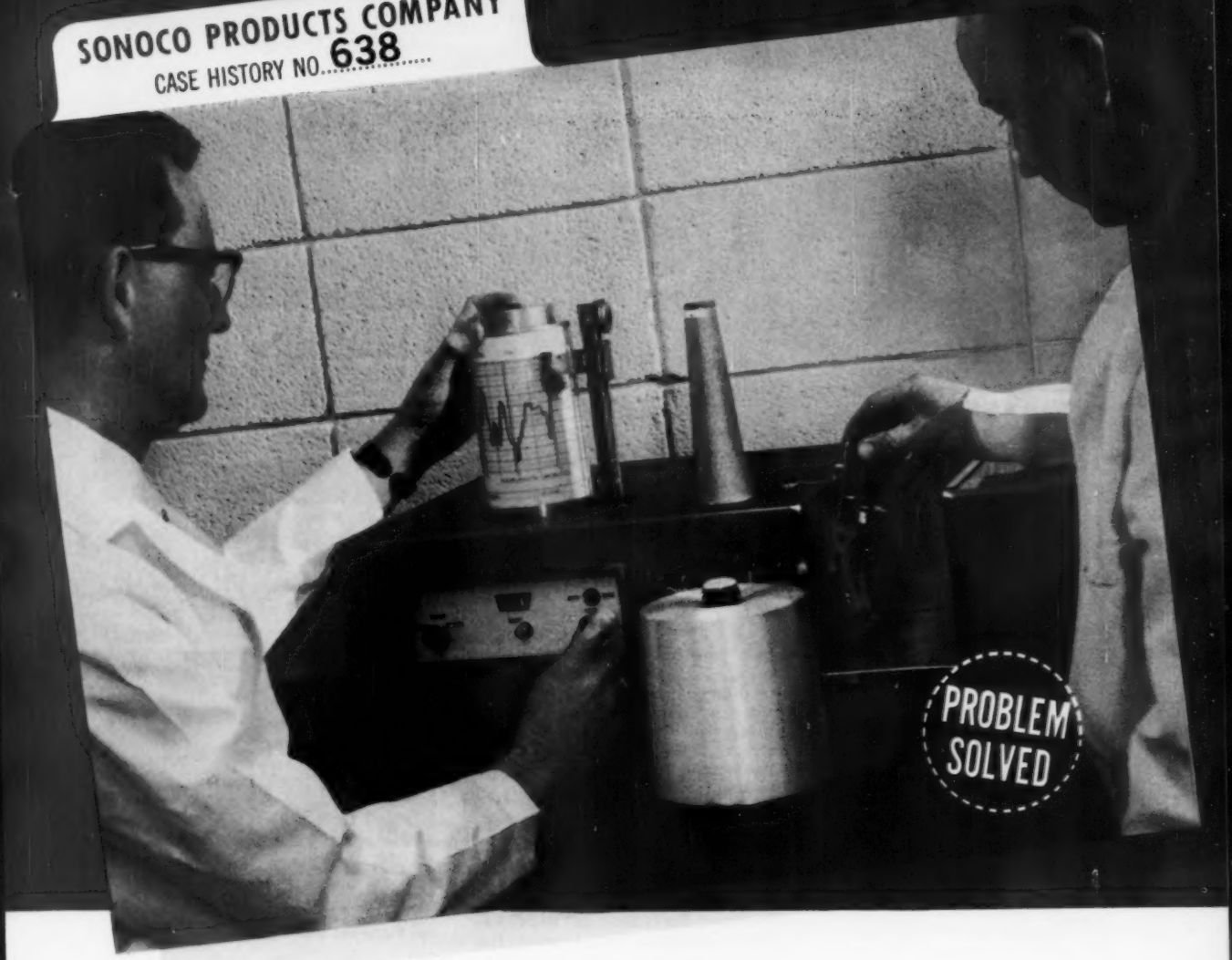
Orders are written in the dyehouse office on the main floor and then they are duplicated in the color shop overhead.

Not only does the Telautograph machine provide instant transmission of a wide range of dyers' orders, but it also helps management avoid costly errors by eliminating mistakes that can easily creep in when oral orders are given.

The machine provides a written order at both stations. Now the dyer has a complete reference of all materials that go into the dyeing of a lot.

The quicker, more precise service has paid for the equipment many times over, plant management reports.

SONOCO PRODUCTS COMPANY
CASE HISTORY NO. 638



PROBLEM: Discoloration of Yarn

The problem was caused by lacquer bleeding on the yarn. It was assumed that this was due to the effect of the coning oil on the lacquer tip of the cone. Investigation by the customer revealed that only certain cone tips were so affected. From this he concluded that Sonoco's lacquer tips varied in quality and composition. Samples of the customer's coning oil along with samples of the discolored yarn were submitted for testing.

In Sonoco's laboratories it was determined that the sample of coning oil had no effect on the lacquer. Oil was then extracted from the damaged yarn and tests showed that this oil did attack the lacquer almost immediately. This indicated a distinct difference between the coning oil and the oil extracted from the yarn. This was confirmed by the use of special analytical equipment.

Further investigation revealed that oils extracted from yarns supplied by certain manufacturers would cause lacquer softening. It was also learned that oil from yarn supplied by other manufacturers would not affect the lacquer. The study proved the problem was created, not by the customer's coning oil nor Sonoco's lacquer, but rather by the spin finish on the particular raw yarn.

When you buy from Sonoco, technical service of this type is an added benefit. Only Sonoco in its field provides the continuous research, product development, and integrated manufacturing needed to meet the ever-changing requirements of the textile industry.

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Products for Textiles

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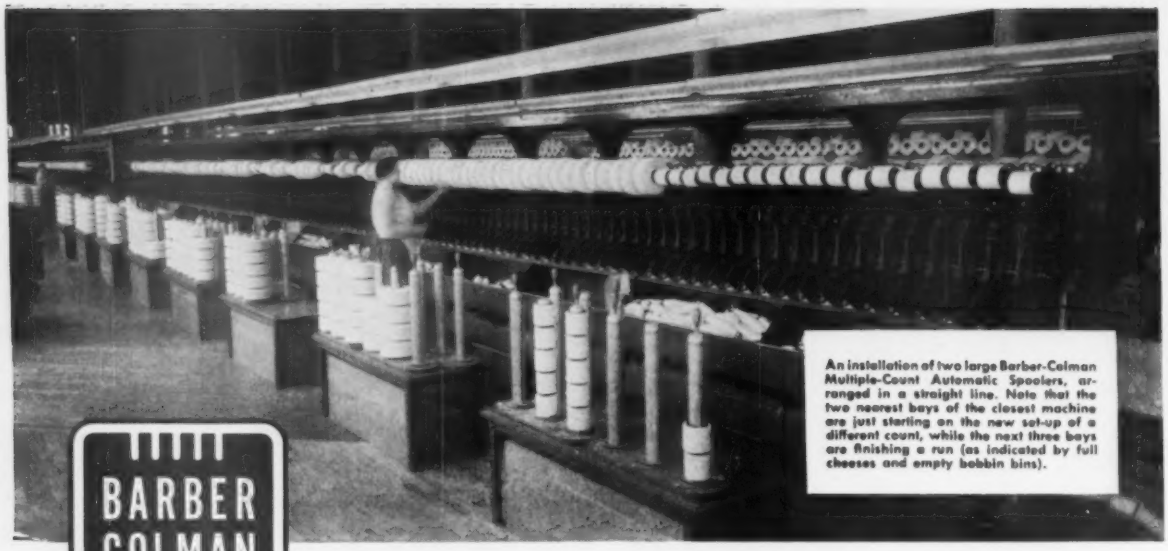
CIRCLE 121 ON READER SERVICE CARD

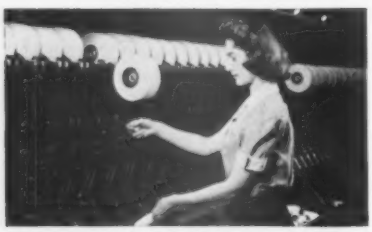
1783



An installation of two large Barber-Colman Multiple-Count Automatic Spoolers, arranged in a straight line. Note that the two nearest bays of the closest machine are just starting on the new set-up of a different count, while the next three bays are finishing a run (as indicated by full cheeses and empty bobbin bins).

BARBER COLMAN

Multiple-Count Automatic Spooler



Spooler tender loading a full bobbin into the Spooler. The bobbin is dropped into a "pocket," and the yarn end is slipped into a spring clamp which positions it properly for the knotter to pick up.

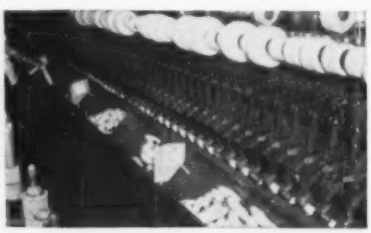
Yarn man moving a trident of full cheeses from operator's table to a creel truck. He also returns tridents of starters, removes boxes of empty bobbins, and keeps full-bobbin bins supplied. Boxes under operator's tables are for tailings, and cheeses to be rewound.

Sale yarn mills and producers of piece goods that use various counts or different mixtures will find that this machine can be a very profitable investment. It is still the famous and the very familiar Barber-Colman Automatic Spooler, but with this difference: now you can wind . . .

A DIFFERENT COUNT EVERY NINE UNITS

The machine is built in "bays" between uprights that support the traveler track, with nine bobbin-to-cheese winding units on each side of each bay. Empty bobbins, instead of being conveyed to a single sorting table, drop into separate boxes under each bay, thus enabling each group of nine units to be used for a different yarn count. Individual operator tables service each bay. The only limitation is that the extremes of different counts on the machine at any one time must fall within the range of the knotter in the traveler. Yarn or count changes can, of course, be readily made at any time, and any number of bays can be run on identical yarns.

A close-up of the full-bobbin supply bins which are fixed to the machine, one bin for each nine winding units. The removable empty-bobbin boxes are shown on the floor below, also arranged so there is one box for each nine units. Note box location guides.



A close-up of several full-bobbin bins showing how dividers can be used to mark off separate runs. Labels tell contents.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

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What's New This Month in . . .

Fibers, Yarns, and Fabrics

By CAROL WILHELM, Copy Editor, TEXTILE WORLD

On View at the Home-Furnishings Show . . .

These were the highlights—a wide variety of new colors and textures for carpets of continuous-filament nylon fiber, the introduction of multilobal nylon in upholstery fabrics, and the first sheer Dacron chiffon for curtains.

Some mills reported that price cutting on certain lines of nylon filament fabric is clouding the market, despite the fact that supply of filament is quite short.

Chemstrand reported that more than 750 color tones and 150 design textures and patterns of Acrilan, Cadon nylon, and Cumuloft nylon yarns are now offered by mills.

Du Pont said that nine mills displayed carpets of its 501 continuous-filament nylon fibers. An official of the company reported that the demand for 501 is so great "we can't supply even half of the people who want it." Du Pont also showed a 100% Dacron awning—not yet commercially available in quantities to consumers.

Price reductions, first by Lees and then by Bigelow, affected some lines of continuous-filament nylon carpets, as well as wool. Bigelow said that the reductions on its 10 lines, ranging from 1.7 to 3% or better, were made for "competitive purposes."

. . . new upholstery

Collins & Aikman showed more than 30 new items in nylon pile and flat fabrics. "Trinity" features a homespun look in 12 colors. "Oxford," a nylon flat fabric, was also shown.

Syl-mer treated fabrics covered every decorative period in styling. Kandell Fabrics featured a new collection with Scandinavian design. Old Deerfield Fabrics showed eight new patterns chiefly in the early American concept.

Burlington House previewed six new upholstery fabrics made of Caprolan, ranging from matelassé to damask.

. . . new curtains

Georgia Co. introduced its new chiffon C-200 curtains of 100% Dacron. The fabric has a bright, shimmering quality. It's available in four prints and a solid. J. P. Stevens wove the fabric. Price for prints is $2.98—for solids, $2.29 and $2.49.

J. P. Stevens showed Dacron sheers in prints with a wide range of modern, traditional and early American styling.

. . . new carpets

Bigelow-Sanford placed heavy emphasis on Du Pont's 501 nylon. The company also announced a new method of applying multicolored patterns to broadloom carpets and rugs in a single operation by precision forcing of tufts into shaped dye-wells of a pattern mold. The Tuft-Dyed line, made by this process, was offered in three qualities. Each quality is made from a different fiber and presents a different texture and pattern type.

James Lees offered a hand-crafted look in five new qualities in wool and nylon. Available colors totaled 57. Four were of loop-pile construction, with hand-loomed effects achieved by coloration and variations in loop size.

Alexander Smith showed seven new grades of carpets—two tufted Orlons, a Du Pont nylon axminster, a Cumuloft-nylon axminster, one wool wilton, and two tufted wools.

Firth Carpet Co. offered 11 new patterns, using several acrylics.

Aldon Rug Mills showed two new lines. One, called Serena, is of nylon plush and retails at $13.95 a yard. It comes in 16 colors. The second, called Saginaw, is of Caprolan and retails at $9.95.

Mohawk Carpet Mills showed Inaugural. It's a carved pattern in heavy plush pile with underlying nubby loops. It's of 70% Acrilan and 30% modacrylic. It comes in 10 colors and retails at $13.95.

Carter Brothers introduced a new bath mat at the show. It's made of Caprolan, ranging from matelassé to damask.

•

Adds Two to Line

Raybestos-Manhattan, Inc., has announced two additions to its series of Novabestos products.

One (No. 7504) is a new form of highly purified, inorganic fiber material saturated with polyvinyl acetate. The paper is a combination of glass cloth and a long-fibered asbestos. It's available in 0.008-, 0.010-, and 0.015-in. thicknesses.

The second (No. 7505) is an asphalt-saturated base paper. The base paper is a composition of 35% asbestos and 65% glass fibers. It's available in 0.008-, 0.010-, 0.015-, and 0.020-in. thicknesses.

Both of these new materials come in sheets, rolls, and tapes.

Lace with a Stretch

Lace Art Co. is making stretch lace of Du Pont nylon. It's available two ways in an Alencon-type pattern—in a sheer and with a backing. The fabric comes in 48-in. widths. It has a 4-yd. yield in the open mesh, a 3½-yd. yield in the opaque version.

Many panty manufacturers are cutting the lace at present and firms that manufacture swimwear, gloves, girdles, and brassieres have sam-

pled the fabrics. Leotards are considered another possible end use.

Lace Art is also planning additional patterns in various weights and densities.

A Worsted Look

J. P. Stevens and Deering Milliken are experimenting with Vycron, polyester fiber produced by Beaunit's Fibers Div., in blended fabrics. These fabrics have a worsted appearance without the special processing that is usually necessary to overcome slickness.

J. P. Stevens has already marketed a blended fabric of Vycron and Narcon rayon. The fabric is used in service uniforms.

Wards Off Weather

Schlegel Mfg. Co. has developed a weatherstripping of woven pile.

The silicone-treated pile fabric has a tough plastisol retaining shield that extends half-way down one side. A diamond-shaped plastisol bead, integral with the shield and molded over the bottom edge of the pile, is designed to fit into the extrusion-groove.

Prints and Plains

Tilbury Fabrics, Inc., is offering a new line of slipcover and drapery fabrics.

The line features nine prints on 48-in.-wide, heavy-textured dobby, all-cotton. All fabrics are vat-dyed, preshrunk, and treated with Scotchgard stain repeller.

In addition, the company is offering three types of coordinated solid colors.

Withstands Heat

The United States Air Force has developed a technique for producing vitreous silica textile yarns from fused quartz canes and rods with the use of electrical heating devices, according to a report by the Air Force.

Both induction and resistance furnaces were used. A resistant unit, shielded against radiation losses and operating in a protective atmosphere, yielded the best results. Four- and five-filament strands were drawn, gathered, coated, and accumulated on a 12-in. drum. The men working on the project tested the filaments and strands under standard conditions for tensile strength, elongation, and modulus of elasticity.

Another New Nylon

Chemstrand Corp. has developed a new type of nylon called Type FRN. The company engineered the nylon specifically for use in aircraft, automobile, and truck tires.

The company tested the new type of nylon on the Bureau of Standards Tire Test machines. The result: an indication of an increase of over 100% in fatigue resistance over tires made with nylon now used in regular commercial production of tires.

Chemstrand hopes that use of the new type nylon in tires will reduce the possibility of breakdowns and blowouts.

Curon Campaign

Reeves Brothers, Inc., is using an educational mailing piece on Curon foam as part of its spring, 1961, promotional campaign. The brochure will be sent to about 20,000 retailers, buying offices, and manufacturers of apparel.

The company has placed special emphasis on the performance of Curon, its selling features, and how customers can use it.

Four with Mylar

Coatings Products, Inc., has developed four new metalized, plastic-to-fabric combinations. They are all called Mirro Brite.

One is produced by laminating a 0.0005 Mylar to a flannel backing. It is available in standard gold and chrome and other metallic colors. Leather grain and other pattern embossing can be obtained.

Another is made by laminating Mylar to a general-purpose vinyl-coated cotton sheeting. It weighs 17 ounces per linear yard.

The third is Mylar laminated to a vinyl-coated cotton sheeting. It's available in 36-in. widths and comes in all standard metallic colors, with flat or with embossed surfaces.

And the fourth: a Mylar laminate with an elasticized cotton backing. It has high tensile strength. A 0.0005-gage Mylar is laminated to a vinyl-coated cotton in 54-in. widths.

Fabrics Get Boost

The Textile Fibers Dept. of Dow Chemical Co. has announced a new fabric program for fall, 1961. The program will feature blends of 50-50 Zefran and Corval, which were woven by Stonecutter Mills.

The promotion will feature a complete range of colors in both piece dyes and yarn dyes. Crepetypes, flannels, standard and heavy twills, and satin backs, as well as plain weaves, will be included.

Tires Get New Cord

Industrial Rayon Corp. introduced a new Tyrex rayon tire cord last month. The new cord is the result of more than two years of research. Commercial production will start early this year.

The new cord, the company says, is well-suited for heavy-duty tires.

The company will offer the cord at regular prices. It will be available in all deniers for use in passenger-car as well as in heavy-duty truck and bus tires.

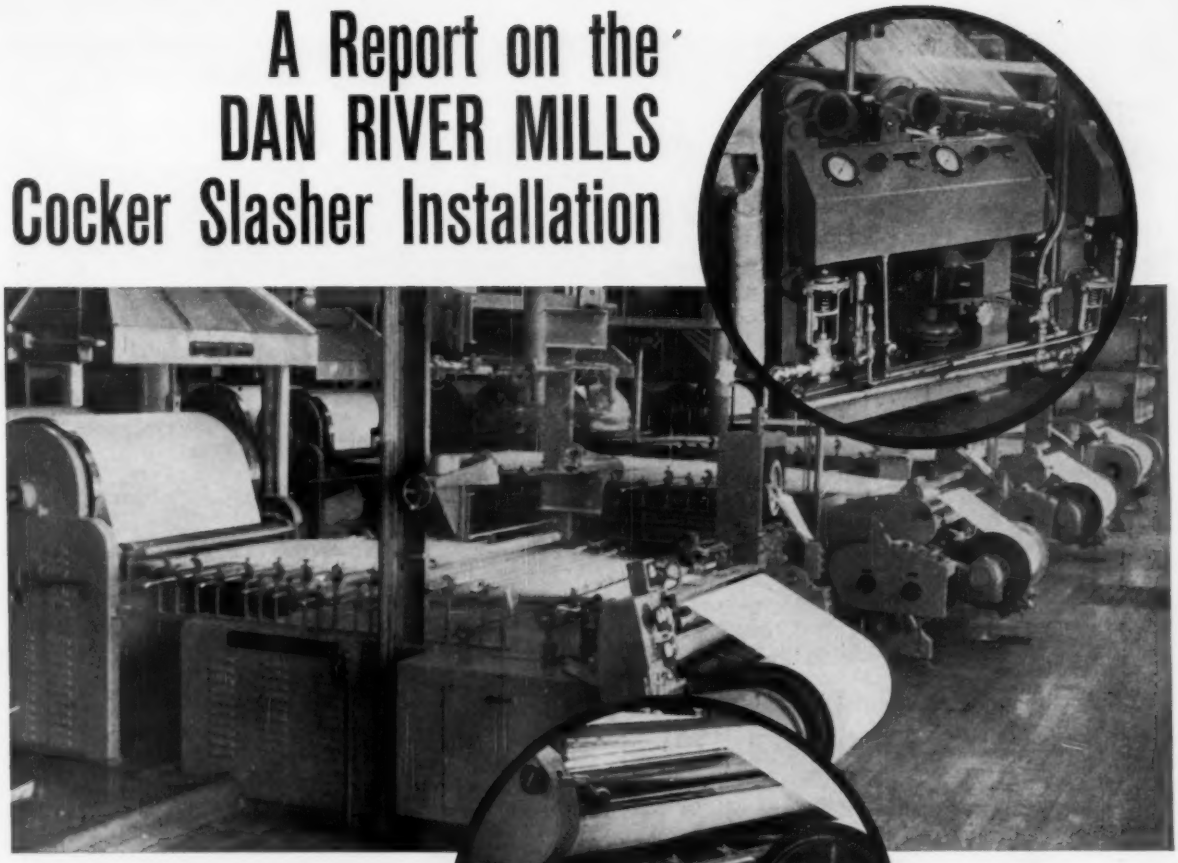
Vinyl to Match

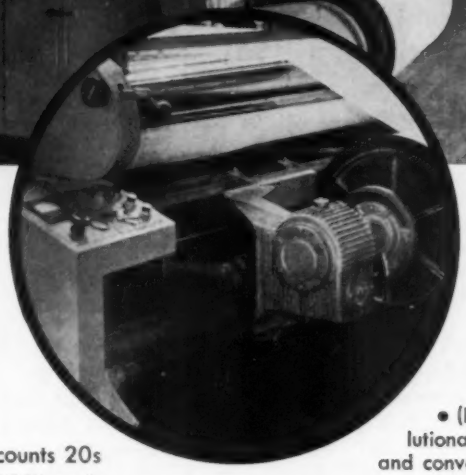
The Textile Div., Knoll Associates, Inc., has introduced a new vinyl fabric that is printed and embossed to simulate the colors, texture, and weave of the company's Scotch Linen tweed. The vinyl was developed by Du Pont for the exclusive use of Knolls. It was designed by Suzanne Huguenin.

The new fabric, called Brigadoon, has an elastic-cotton, knitted backing. It is in six color combinations: beige and white, black and white, two-tone green, two-tone blue, two-tone yellow, and two-tone red. It's 54 inches wide.

The company uses a new perforation process, which gives the fabric breathability.

A Report on the DAN RIVER MILLS Cocker Slasher Installation





In 1959, Dan River Mills integrated their slasher operations as shown in the picture above. These four machines (2 GH and 2 1954 models) have replaced eight other slashers of varying types and ages.

These four Cocker Slashers easily carry a load of 2547 looms, running everything from prints to fancies and stripes—yarn counts 20s to 50s—and from 4700 ends 32/1 to 9540 ends 32/1.

Minimum Loom Beam Width
50 Inches

Maximum Loom Beam Width
107¾ Inches

Maximum Loom Beam Head Diameter
32 Inches

- Large picture shows modern Slasher Room at Dan River Mills, Inc.
- (above) Control panel on double size box gives quick direct readings. Air motors assure precise and even loading of top rolls.
- (left) This view shows the revolutionary Cocker Torque Tube Drive and convenient control panel.

Speeds . . .

Dye Beams up to 150 ypm
Stripes up to 150 ypm
4770 ends 32/1—150 ypm
9540 ends 32/1—79 ypm
Top Operating Speed—150 ypm
Heaviest Production set—79 ypm
Average Production operating on 120 hours per week on shift for shift basis—69,716 lbs. per slasher.

Write for Full Information

COCKER MACHINE & FOUNDRY COMPANY

IN CANADA:
Contact W. S. Clark
Montreal, Canada
Oxford 7-2242

IN MEXICO:
Ing. J. Via, Jr.
I. La Catolica 45-511
Mexico, D. F.

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WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

TEXTILE WORLD... News from the Mills

Avondale Mills, Sylacauga, Ala., has purchased 95 Whiting spinning frames costing about $1-million for its Catherine plant. Delivery is expected to take place within the next few months.

Berkshire Hathaway, Inc., New Bedford, Mass., has made plans to spend $3-million on new machinery and equipment improvements for its four Rhode Island and three Massachusetts plants.

Burlington-Balfour Mills, New York, N. Y., has been formed by Burlington Industries, Inc., New York, to handle men's and children's hosiery manufacturing and sales. Manufacturing headquarters will be in Asheboro, N. C.

Cannon Mills Co., Wiscasset Mills Div., Kannapolis, N. C., has begun construction of a $1.5-million dye plant in Albemarle, N. C.

Cone Mills Corp., Greensboro, N. C., has acquired controlling interest of John Wolf Textiles, Inc. The company will operate separately and independently of Cone with its current staff under the direction of John Wolf as president.

Erwin Mills, Inc., Durham, N. C., has spent over $2¾-million for improvements and expansion of its manufacturing facilities during the past fiscal year. The company plans in the near future to modernize and expand the finishing plant and warehousing at Durham.

Greenville Finishing Corp., Greenville, R. I., has announced plans to terminate operations at its Taunton, Mass., dye and print works and consolidate and expand operations at its Greenville, R. I. plant.

Hanes Hosiery, Inc., New York, N. Y., has moved its New York offices to an 8,300-sq.-ft. office area located at 630 Fifth Ave. This is in line with its expansion program which will double production of seamless stockings.

Hightstown Rug Co., Hightstown, N. J., has announced that the company will add a tufting unit supplementing its velvet and knitting operations. The tufting unit will be housed in the company's new plant in East Windsor Township near Hightstown. Production is scheduled to begin in May.

Joanna Cotton Mills, Joanna, S. C., has purchased 40,000 spindles of Japanese high-draft, sliver-to-yarn cotton spinning equipment. The purchase is expected to exceed $1.5-million.

Jonathan Logan, Inc., New York, N. Y., will install a spinning and dyeing plant addition for the production of finished yarns for its knitted dresses. The 60,000-sq.-ft. addition will involve an outlay of $1.2-million for machinery.

Kayser-Roth Hosiery Co., Inc., New York, N. Y., has made plans to acquire the principal assets of Mojud, Inc. Mojud will retain a small manufacturing operation at Amsterdam, N. Y.

Kimberly Yarn Mills, Mount Holly, N. C., has bought the old Woodlawn Cotton Mill in Mount Holly from American & Efird Co. The company will produce carded yarns for the knitting industry.

Monarch Mills, Lockhart, S. C., has contracted for a three-floor addition to its plant at an estimated cost of $250,000.

National Spinning Co., Washington, N. C., has begun expansion of its Brunswick, N. C., plant. The addition will double floor space at the facility, which opened less than a year ago.

Nigerian Textile Mills Ltd., Ikeja, Nigeria, a new textile firm, is constructing a $4.9-million mill which is expected to be in production by early 1962. The fully integrated mill will include everything from spinning to printing and finishing.

Orr Felt & Blanket Co., Piqua, Ohio, is discontinuing the manufacture of blankets and cloth for outerwear to concentrate on woolen and man-made-fiber papermaker felts.

Pellon Corp., New York, N. Y., is building a 10,000-sq.-ft. addition to its manufacturing operations at Lowell, Mass.

Sayles Finishing Plants, Inc., Saylesville, R. I., has closed its bleacheries division in Lincoln and Central Falls, R. I. Special Fabrics, Inc., a subsidiary, will continue its manufacturing and converting operation at Saylesville.

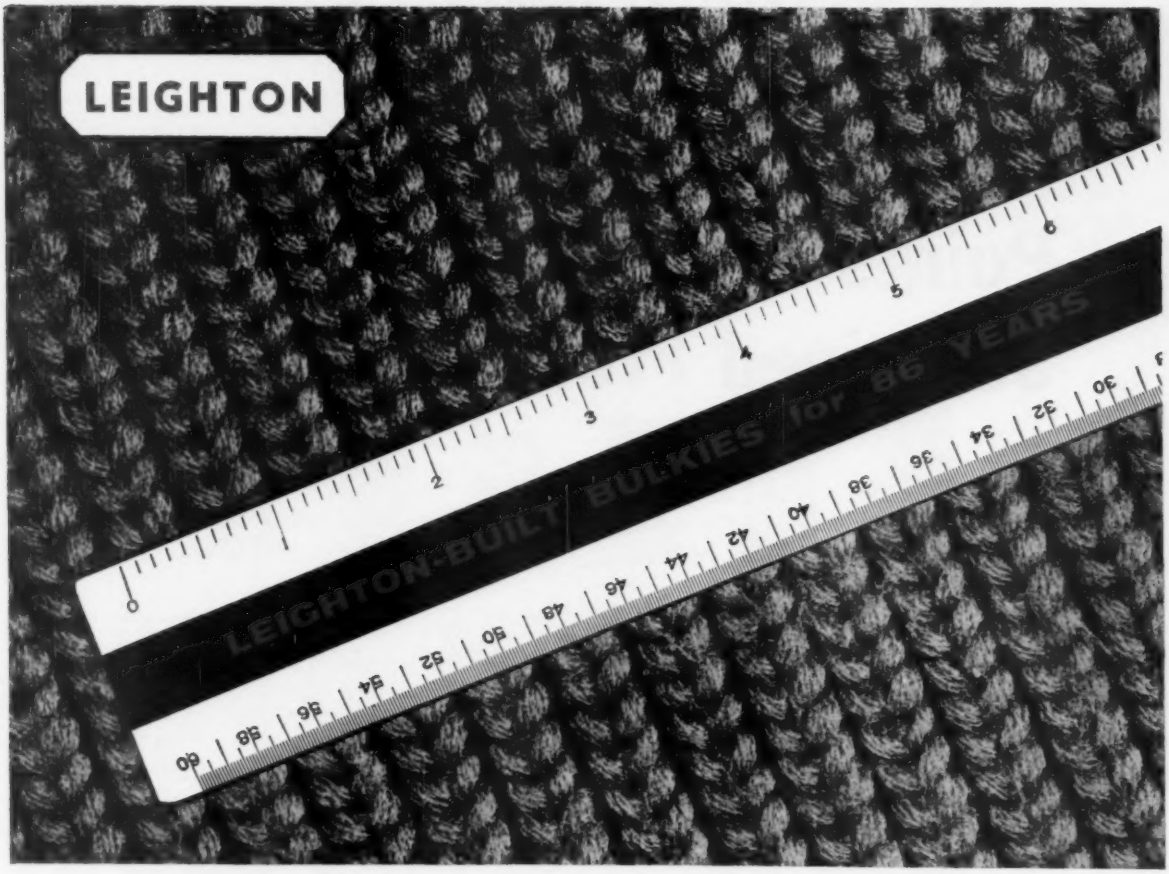
Slater Mills, Inc., Kings Mountain, N. C. (formerly known as Slater Bros., Inc.), is moving machinery from Paterson, N. J., and consolidating its operations in Kings Mountain. The firm will manufacture pile fabrics and metallic yarns for upholstery materials.

J. P. Stevens & Co., Inc., New York, N. Y., has formed a new jointly owned company with Royal Textile Mills, Nijverdal-Ten Cate N. V. of Almelo, The Netherlands. The company will manufacture and distribute cotton work clothing, rainwear, and sportswear fabrics within European markets. Its name is Stevens-Ten Cate N. V.

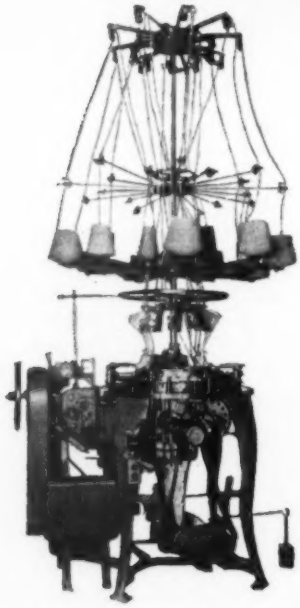
Sutton Mills, North Andover, Mass., has moved its finishing operations to North State Woolen Co., a division of Maine Spinning Co., Sanford, Me.

United States Rubber Co., New York, N. Y., has moved the southern district sales office of the textile division from Chattanooga, Tenn., to Dalton, Ga.

Yanceyville Knitting Mills Co., Inc., Yanceyville, N. C., will move its operations to a portion of the building formerly occupied by Ashburn Hosiery Mills at Mount Airy, N. C., using approximately 8,000 square feet of floor space.



LEIGHTON MACHINES "MEASURE-UP" TO REAL BULKIE SPECIFICATIONS . . 2 TO 5 CUT



- 2 and 2½ cut-built one needle rack.
- 3, 4 and 5 cut-built three needle rack.
- 3 color stripes
- Ideal for Synthetic Yarns
- Extra feed for separation
- Half Cardigan, Full Cardigan and Nubb Stitches by simple manipulation.

SAMPLES ON REQUEST

LEIGHTON MACHINE COMPANY
MANCHESTER, NEW HAMPSHIRE

MFGRS. OF CIRCULAR LATCH NEEDLE KNITTING MACHINES

For 86 years Leighton has been in continuous operation developing and manufacturing knitting machines to meet customer demands.

CIRCLE 127 ON READER SERVICE CARD 127

How American Industry Points The Way To Sustained Prosperity in 1961

Something new and very constructive is happening in American industry. It promises to add a major element of strength to business not only in 1961 but right along over the years ahead.

What is happening is essentially this. **American industry is planning to continue to invest heavily in new and better producing facilities in spite of the fact that it has an excess of capacity to produce its present range of products. And, by doing so, business is helping to shape a stronger American economy.** For the continuation of a high level of capital investment by business is one of the most important keys to sustained prosperity.

News of this major new development in American industry is provided by the results of the McGraw-Hill Fall Survey of Business Investment Plans for 1961 and 1962, presented in detail at the right. The McGraw-Hill investment surveys, now in their 13th year, cover a broad cross-section of American industry.

How American industry is aiming to go ahead with a big investment program in spite of its present burden of excess producing capacity is highlighted by the plans of manufacturing companies. The McGraw-Hill fall survey finds that, on the average, these companies are using slightly less than 80 per cent of their producing capacity. They would like to be using well over 90 per cent.

Dramatic New Departure

If historic investment patterns were being followed, our manufacturing companies, with only about 80 per cent of their capacity being employed, would be cutting back new investment programs drastically, and cutting down prosperity in the process. **But — and here is the dramatic new fact — they plan almost no cut-backs in their investment programs.** They plan to invest almost as much (within 3%) in 1961 as they are investing this year. And this year they are investing 19 per cent more than they did in 1959.

There are two major reasons why American industry is unwilling to let its excess producing capacity stall its investment in new facilities until the capacity is more fully used. One is that a lot of this capacity is obsolete and costly to operate. Increasingly rugged competition is creating a strong inducement to replace this antique capacity with modern, more efficient equipment which is widely available.

PLANS FOR CAPITAL SPENDING
(Billions of Dollars)

INDUSTRY	1959 Actual*	1960 Estimated*	1961 Planned	1960-1961 % Change	1962 Planned
Iron and Steel	$1.04	$1.52	$1.37	—10%	$1.18
Nonferrous Metals	.31	.34	.34	0	.32
Machinery	.91	1.15	1.11	— 3	1.11
Electrical Machinery	.52	.62	.68	+10	.63
Autos, Trucks & Parts	.64	.89	.95	+ 7	1.02
Transportation Equipment (Aircraft, Ships, R.R. Eq'pt.)	.39	.41	.37	—10	.35
Other Metalworking	.88	.97	.85	—12	.87
Chemicals	1.24	1.61	1.64	+ 2	1.59
Paper and Pulp	.63	.75	.69	— 8	.53
Rubber	.19	.24	.23	— 4	.20
Stone, Clay and Glass	.53	.63	.56	—11	.55
Petroleum & Coal Products	2.49	2.45	2.52	+ 3	2.50
Food and Beverages	.82	.94	.99	+ 5	.97
Textiles	.41	.53	.42	—21	.40
Miscellaneous Manufacturing	1.07	1.28	1.21	— 5	1.13
ALL MANUFACTURING	12.07	14.33	13.93	— 3	13.35
Mining	.99	.99	.90	— 9	.89
Railroads	.92	1.04	.79	—24	.83
Other Transportation & Communications	4.69	5.20	4.61	—11	4.18
Electric And Gas Utilities	5.67	5.89	6.14	+ 4	6.01
Commercial (1)	8.21	8.61	8.70	+ 1	8.54
ALL BUSINESS	32.55	36.06	35.07	— 3	33.80

*U.S. Department of Commerce, Securities and Exchange Commission, McGraw-Hill Department of Economics.

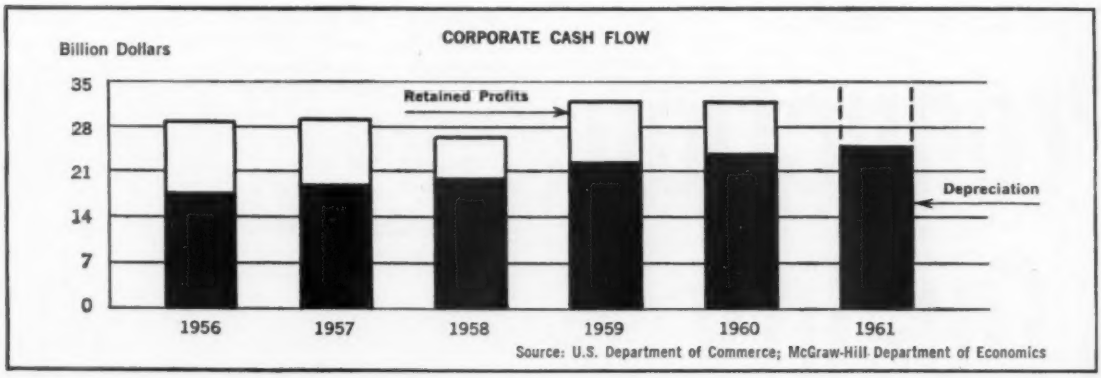
(1) Figure based on large chain, mail order and department stores, insurance companies, banks and other commercial businesses.

"R And D" Paves The Way

The steel industry provides a good case in point. Despite an operating rate of little more than 50 per cent during the last six months, steel companies plan a total investment of nearly $1.4 billion in 1961. And though this is 10 per cent below their capital expenditures in 1960, it will still be the third highest year on record.

incentive and wherewithal to continue a vigorous program of new investment. In addition, if price inflation were to begin surging again, it would eat away the power of depreciation reserves to purchase new plant and equipment.

The allowances now permitted American industrial firms for the depreciation of their producing facilities are lower than those made in any of the industrial



Also, new investment is required to tool up for the manufacture of the new products being spawned by the continuing boom in industrial research and development. This year, we are spending about $13 billion (that's *billion*) for all research and development, about $9.6 billion of it through industry.* And out of it is coming the "know-how" for a veritable flood of new products, processes and equipment, most all of these calling for new producing equipment. Next year, American manufacturers plan to get 12 per cent of their sales in products that did not even exist four years ago.

Key Role Of Depreciation Reserves

A major reason why American industry can combine the desire to carry out big new investment programs with the necessary financial capacity to do it is to be found in the growth of its reserves for depreciation. This year, (1960), business has been in a squeeze between costs and the prices it could get for its products. This cost-price squeeze has reduced profits sharply. The total of profits for the year will be down about 5 per cent.

Allowances for the depreciation of existing plant and equipment, however, have continued to rise. The result is that the so-called cash flow of corporations (their retained profits plus their allowances for depreciation) is the same this year as last. And this cash flow, shown in the chart above, makes a decisive contribution to financing new investment.

Inflation Would Be Deadly

If the sort of profit squeeze that has prevailed this year were to become chronic, it would blight both the

countries with which we are in increasingly tough competition. More adequate allowances would speed up the job of modernizing American industry. An earlier McGraw-Hill survey indicated that it would cost only slightly less than $100 billion to bring our nation's plant and equipment up to date.

But at this juncture, American industry's eagerness and capacity to maintain a high level of investment capital is adding a great new element of constructive strength to the nation's economy.

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*The significance of this boom for American industry is analyzed in a new McGraw-Hill book, "The Research Revolution" by Leonard Silk, Economics Editor of BUSINESS WEEK. Together with other new business investment trends the "R & D" boom also constitutes a key part of another new McGraw-Hill book, "New Forces in American Business" by Dexter M. Keezer and associates — the November selection of the Business Book Club.

This message was prepared by my staff associates as part of our company-wide effort to report on major new developments in American business and industry. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or part of the text.

Donald C. McGraw

PRESIDENT

McGRAW-HILL PUBLISHING COMPANY

Production & Quality

two big reasons for buying the Pacesetter Slasher

PRODUCTION: West Point's PACESETTER Slasher is achieving drying rates of over 1,600 pounds per hour (dry unsized weight) on 9-cylinders and over 2,000 pounds on 11-cylinders. Operating speeds of 90 to 150 yards per minute are commonplace while 175 and over 200 yards are known in special cases. Excellent warps come off these slashers with superior control of tension and size pick-up, whether you are slashing cotton, spun synthetics, filament synthetics, worsted and synthetic blends . . . canvas, print cloth, satin, or suiting materials.

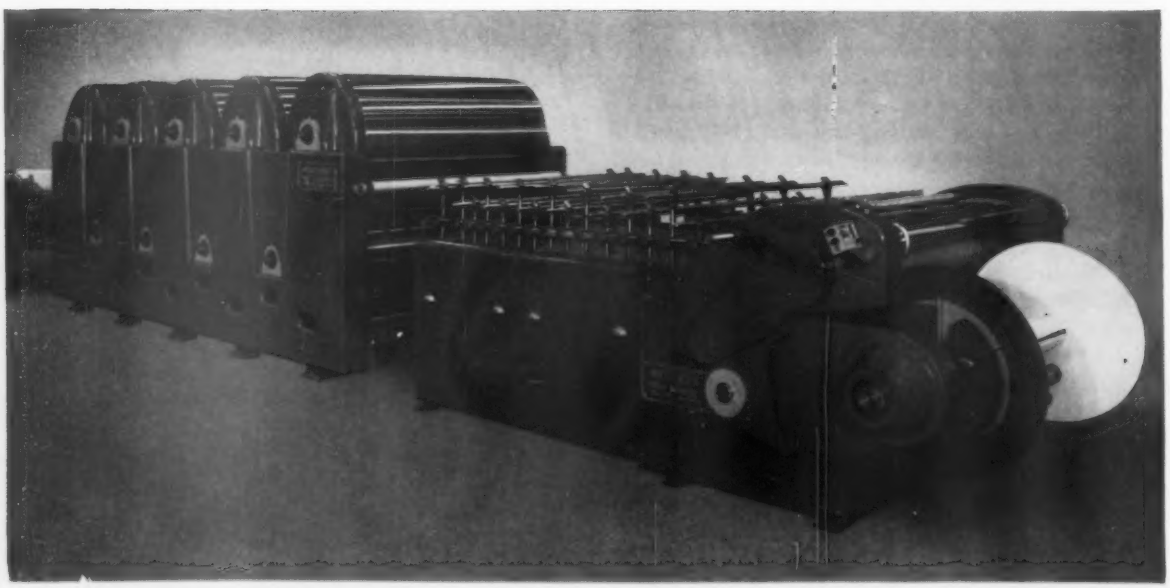
QUALITY: The PACESETTER is built to last, with an extraordinarily massive cast iron frame with smooth uncluttered sides, extra heavy-duty 2⅛-inch journals with self-aligning cylinder bearings, the largest sprockets for longer life (or optional V-belt drive), patented wide-open design for superior access to the warp, convenient lift-out panels, covered steam and condensate manifolds, and other built-in quality features.

NEW SALES RECORDS: West Point's Multi-Cylinder Slasher has broken all sales records since 1955 and during the past two years more than 150 PACESETTERS have been sold; more than 300 West Point Multi-Cylinder slashers sold in 5 years: An accomplishment made possible only because in installation after installation the West Point PACESETTER has proved to be the industry's leader in production — its standard of quality.

Any way you look at it — it's worth your while to get more information on West Point's PACESETTER Slasher. Ask us . . . or ask your neighbor who runs one!

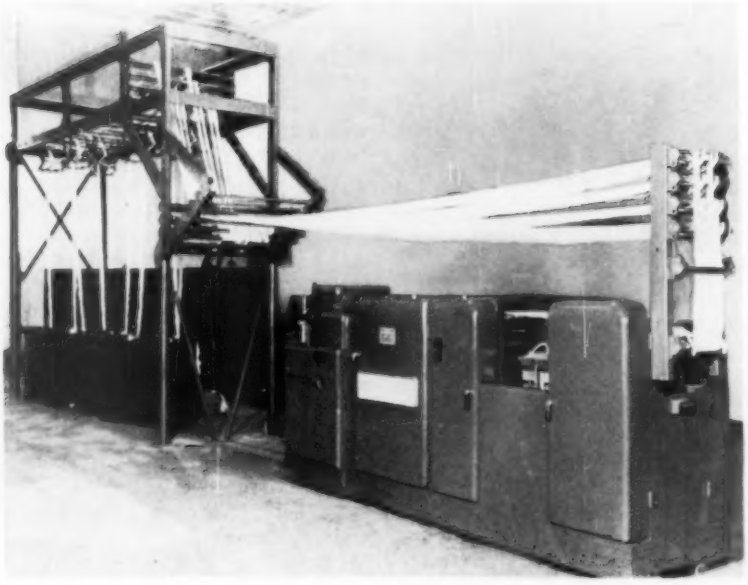
West Point
Foundry & Machine Co.

WEST POINT, GEORGIA



TEXTILE WORLD . . . Equipment and Supply News

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.



Converts Tow Directly to Top

Man-made-fiber tow is made into top on this tow transformer. Developed jointly by the Roberts Co. and Tematex Co., this unit takes two-million-denier tow.

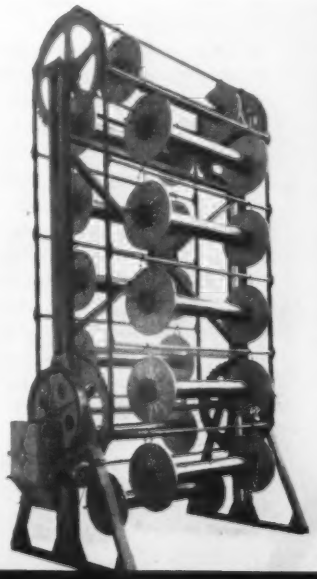
It produces top in staple lengths from 2½ to 8 inches in normal or high bulk. High bulk tops are made in one operation without the need for a heat-relaxing process normally used on other systems.

The machine infeed has hydraulic weighted rolls, which feed the tow through an automatically controlled heated pre-stretching zone. Then the cutting is done by a helicoidal cutter, and a single head ParaDrafter gill box parallels the fibers. The unit produces tow at a rate of 140 pounds per hour, which is delivered into a can 24 inches in diameter. **(Circle E-1 on Reader Service Card)**

E-3—Winder comes with lathe-type bobbin holders. These fixed-center holders give precise rotation, which eliminates vibration. The traverse motion, which can be adjusted to make three-style packages, winds perfect bobbins at high speeds. With 8-oz. bobbins, speed is 500 ypm.; with 2-lb. bobbins, speed goes up to 750 ypm. Higher speeds are achieved on tapered warping or shipping bobbins. This winder is designed so that lubrication is not required near the bobbin-winding area. Fletcher Industries, Inc.

E-4—Circular knitting machine, for pique fabrics, feeds 32 yarns at a time. Available in five cuts up to 18 needles per inch, the unit runs at a rate of 23 rpm. and produces 18 yards per hour. A special design prevents the needles from being pulled together while knitting pique fabrics. Also the dial is held in position by a heavy cross bar and spindle, which (by 8 screws) adjusts to close tolerance. This stationary, 30-in. cylinder machine has individual motor drive and an air-cleaning unit, which prevents lint accumulation on carrier and needles. Scott & Williams, Inc.

This Beam Holder Offers 100% Selection



Vertical beam holder (right) gives maximum cubic utilization with 100% beam selection. Designed by Sacfem, this storage unit is limited only by the height of your building. The device is built to customer specifications. The producer uses a unitized construction and this beam holder is made to fit any size or type of plant. The unit saves handling time because beams can be put away or taken from stock quickly and easily. The beam holder is a self-contained unit. It has its own motor and pushbutton control for starting and stopping. Any width or size beam can be stored. Improved safety is an added advantage. **(Circle E-2 on Reader Service Card)**

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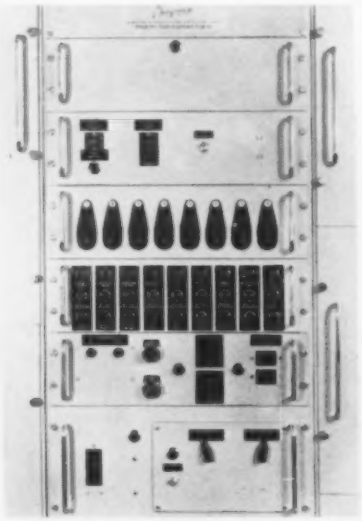
Equipment and Supply News . . . *Begins on page* 131



Knit With Electronic Control

A fully automatic electronic knitting process, called the MacQueen Taylor Knitting System, makes a shaped garment. This system, offered by MacQueen Cybernetics Ltd., knits dresses, suits, or swimwear complete with sleeves, cuffs, pleats, bows, or other trimmings in a single, continuous operating cycle.

The knitting unit (photo on left) is a special single-bed flat machine that knits wedge-shaped sections of fabric by decreasing the number of knitting needles. The machine is 12 feet wide, 3 feet high, 2½ feet deep with a knitting width of 6 feet. The gage can be varied from 8 to 16.

The complete system includes a design drafting board for knitting patterns and garment styling; coding desk; tape perforating desk; tape-reader control center; master control center; machine control center, and up to eight knitting machines. The master control unit (photo on right) monitors the operation of up to eight knitting machines through the individual machine control center.

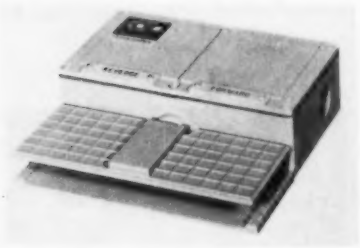
Using eight knitting units, this system produces up to 54,000 garments each year on a 3-shift operation. This system requires only one knitter per shift and all he does is replace the yarn and remove finished garments. **(Circle E-5 on Reader Service Card)**

Super Precision for Screen Printing

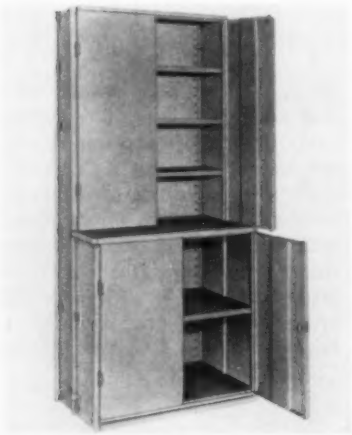
Screen printer with ultrasensitive device for uniform pasting, works on fine fabrics with plain or napped surfaces. The mechanical drive on this unit, developed by Comerio Ercole Co. assures rapid and accurate print register (tolerance 0.1 mm.). The feed ranges from 380 to 3,000 mm. for the belt conveyor.

Screen frames are lifted pneumatically. And any type of screen frame fits this unit. Twelve different colors can be printed. Automatic stop and regulation is provided for the blanket, which is uniformly driven for printing accuracy. After washing, the blanket passes through a drying chamber that uses air, heated by gas, electricity, or steam—depending on customer requirements. **(Circle E-6 on Reader Service Card)**

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

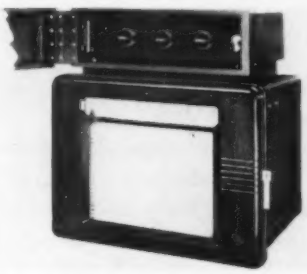


E-7—Foot switch in treadle type is designed for a.c. or d.c. current. The unit uses single pole, double throw, twin break, silver contacts and is completely enclosed in a moulded phenolic block. The Standard Duty switch is a two-position, spring return front-treadle operated. The Heavy Duty is side-treadle operated, and comes in a NEMA 4 watertight enclosure. This unit is designed for versatility. The treadle adjusts (in the field) from a 3-position, spring return to a 2- or 3-position, maintained contact. Cutler-Hammer



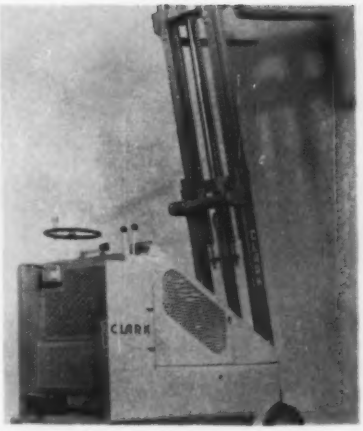
E-8—Steel shelving with lockable doors comes with a waist-high ledge for use as a work area. The units are 36 inches wide by 89 inches high. The doors engage at three points for maximum security. Door handles have a built-in key lock. Finished in oven-baked enamel, the standard colors are grey and green. A special phosphate undercoat protects against corrosion. Alan Wood Steel Co.

E-9—Volumetric feeder measures all free-flowing powdered, granular, or lumpy solids by volume at rates up to 3,600 cubic feet per minute. Two feeders are available; 9-in. belt model that feeds 0.1 to 600 cu. ft./hr., 18-in. belt model with a range of 0.6 to 3,600 cu. ft./hr. This feeder has a dial setting for feed rate with a 10 to 1 range. Feeding accuracy is ±3% over any one-minute period. The over-all feeder construction is aluminum and the vertical gate is made from stainless steel. Wallace & Tiernan, Inc.

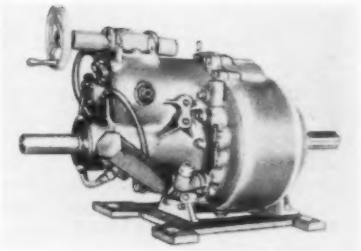


E-10—Recorder has an adjustable span and zero control and eliminates external calibration. Span and zero accuracy is with 0.5% of the setting. The unit uses a Zener diode constant voltage source for accuracy—even in the one millivolt span. Zero suppression and span circuits operate independently. The unit has a swing-away chassis that permits easy access and maintenance. Barber-Coleman Co.

E-11—Inspection table has the roller cradle at the front of the table. The inspection table is divided and the cloth is threaded so that one side of the cloth is inspected on the lower half of the table, while the other side of the cloth is inspected on the upper half of the table. Each half of the table has its own lighting unit. After inspection the fabric is rewound at the rear of the machine. A forward, stop, and reverse control is at the front. Also available are a foot control and a yardage counter. Birch Bros., Inc.



E-12—Lift truck with gas-powered, water-cooled engine has a power-shifted transmission with torque converter. Full 360-deg. steering makes for a 62-in. turning radius. Travel speeds are 8 mph. forward or reverse at the rated load. The lift rate is 75 fpm. loaded, and lowering is 60 fpm. loaded. Units are available in 2,000- and 2,500-lb. capacity at 24-in. load centers. Clark Equipment Co.



E-13—Variable-speed drive adjusts from 0 to 1600 rpm. with the twist of a handwheel. Designed for high-torque and continuous-duty, this drive runs on any 2- to 10-hp. motor. Controls include a neutral-off position. Unit has ball or roller bearings throughout. The input shaft is 1⅜ inch in diameter, the output is 1⅝ inch in diameter. Each are 4 inches long. This heavy-duty drive is lightweight and compact. It weighs 100 pounds and measures 22x13x16 inches. Roberts Electric Co.

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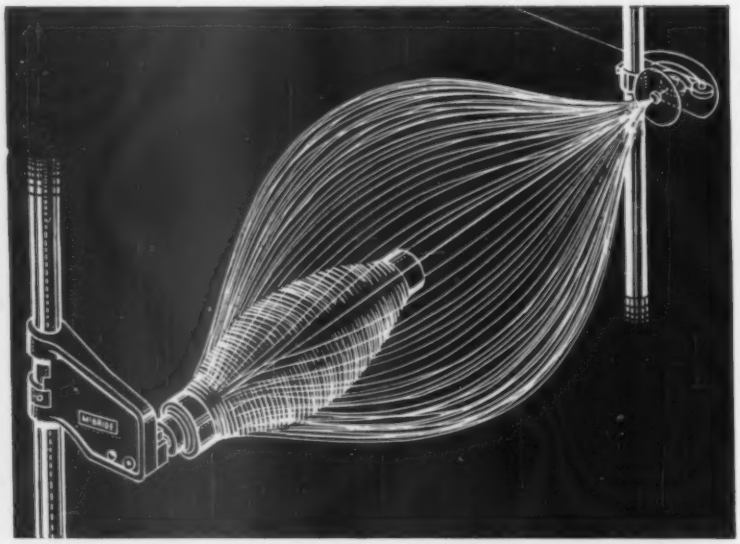
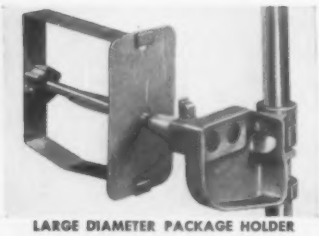
BE ON TARGET WITH McBRIDE

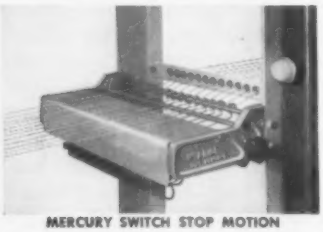


HEAVY DUTY CREEL ARMS

UNIVERSAL CONE HOLDER



LARGE DIAMETER PACKAGE HOLDER



MERCURY SWITCH STOP MOTION

Are your creel arms overloaded? Have you a problem reaching the target (entrance eye) on your tensions? If so you are losing warping efficiency. McBride's heavy duty package arm is designed specifically to correct this situation!

No Sag — even the largest packages stay straight on target for accurate over end draw off.

Fast Change — arm swings back out of way for package change, no interference with ballooning yarn.

McBride swing arm assemblies are made to fit all packages.

Instant changeover with McBride Quik change cone and large diameter package holders.

Complete new creels or fittings to modernize your existing creels.

Write today for our latest catalog.

LET McBRIDE STUDY YOUR WARPING SITUATION. YOU MIGHT BE SURPRISED WITH THE COSTS YOU CAN SAVE, THE IMPROVED QUALITY IN THE WARPS YOU PRODUCE.

CREELS *FOR EVERY PURPOSE*, CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS.

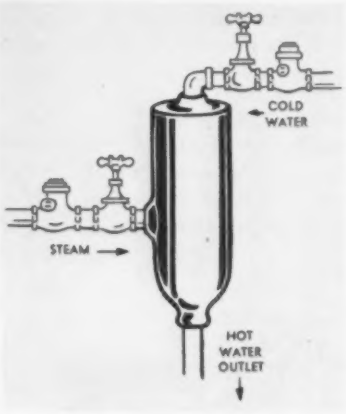
Complete engineering service is part of every McBride installation.

McBRIDE COTTMAN AVE. & WISSINOMING ST.
PHILADELPHIA 35, PENNSYLVANIA
In Canada: Hugh Williams & Co., 27 Wellington St. E. Toronto 1, Ontario

Equipment & Supply News

. . . *Begins on page* 131

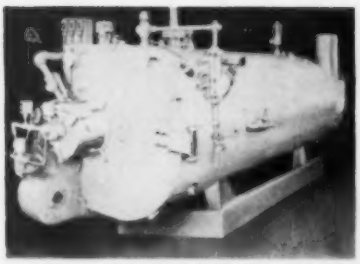
E-14—Spiral jacquard drum controls 24 jacquard knitting feeds on a 30-in.-dia. machine. This unit makes the JSD-24 machine twice as productive as standard 12-feed jacquard knitting machines. The automatic drum is driven by four spur gears. Wildman-Jacquard Co.



E-15—Steam and water mixer makes instant hot water without tanks or heater. The unit is stainless steel. There are no gaskets or coils, which eliminates maintenance problems. Steam is mixed directly with the cold water and is used only when hot water is drawn. This heater can also be used to preheat process solutions or as a booster for heated solutions. Conant Brothers Co., Inc.

E-16—Recorder, for research or industrial laboratories, has five steps of automatic zero suppression. The zero shifts automatically accommodate any signal within a specific range, but the span remains the same. Any span from 2 to 250 millivolts can be selected. Unit has two pens—the recording pen and the step pen (tells which step of zero suppression is being used). Barber-Colman Co.

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.



E-17—Boiler designed to work with gas- or oil-fired burners. The unit has hinged front and back covers with quick-opening fasteners. With these fasteners, the front cover can be opened in two minutes without disturbing the burner, wiring, or piping. Hot-water and steam automization are available in five sizes. These standard sizes range from 50 to 100 hp. A combination-fired burner can be used. Orr & Sembower, Inc.

E-18—Fork lift truck has a detachable clamp and drum up-ender for handling wooden or steel barrels. This unit allows the operator to pick up, elevate, and dump loads without leaving the control handle. The truck handles drums up to 36 inches high by 28 inches in diameter that weigh up to 500 pounds. By removing the drum clamp this walkie unit handles skids or pallets. Lewis-Shepard Products, Inc.

. . . *Turn to page* 138

NEW!

Faultless
100 and 500 SERIES
Textile Casters

Series 500
Rigid Plate Caster

Series 100
Swivel Plate Caster

Special sturdy King Pin; large diameter ball bearings roll in uninterrupted, lubricated raceway.

Snagged threads that bind doff box or truck casters needn't stop your textile production! Faultless has designed NEW *textile casters* with *wide*, easy-to-get-at *clearance* between caster wheel and horn. Low cost Faultless 100 and 500 Series Casters also feature corrugated steel construction for added strength, ball bearing assembly in hub to absorb side thrust, deep drawn thread guards, and wide choice of wheels to suit a variety of load and floor conditions.

Ask Your Distributor

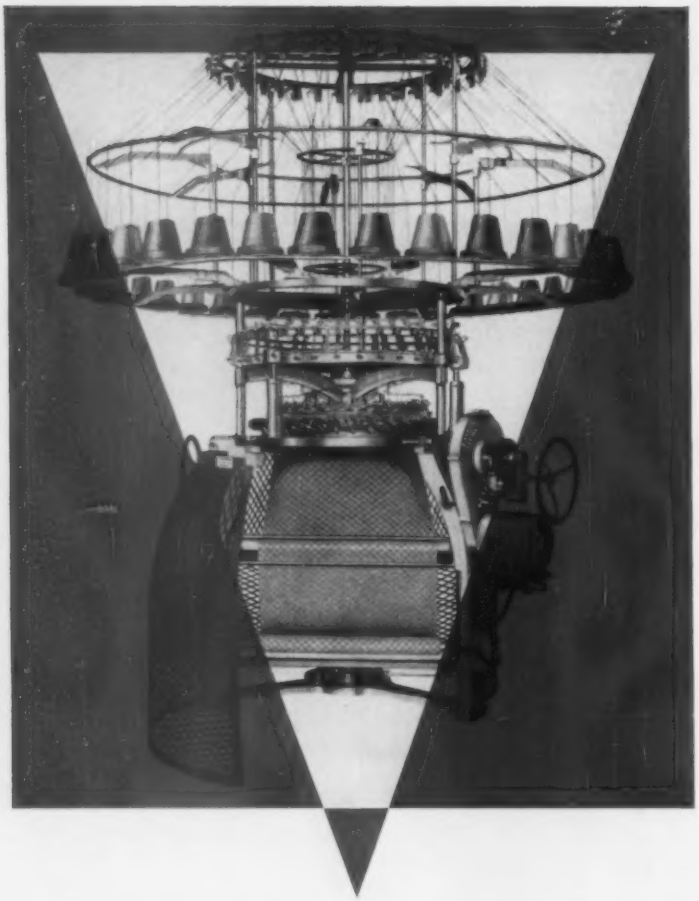
Your local Faultless Industrial Distributor has a wealth of information on caster applications, and he maintains a caster stock. Both he and the local Faultless Sales Engineer will be glad to work with you.

NØELTING
Faultless Casters

Caster Corporation
Evansville 7, Indiana
Branch Offices in principal cities; see the Yellow Pages of the telephone book under "Casters."
Canada: Stratford, Ontario

CIRCLE 135 ON READER SERVICE CARD

SUPREME



Double-Pique Fabric Up To 20 Yards Per Hour

Other Fabric Up To 40 Yards Per Hour

Write for free booklet on this important advance in the interlock field

UNEQUALLED VERSATILITY

30" dia., 36 feeds in cuts through 16 needles per inch—produces "Double Pique" and "Grenadine" fabrics; "Blister" stitches, plus a tremendous range of other patterned rib or interlock.

50% GREATER PATTERN AREA THAN ANY OTHER MACHINE

Plus a spectacular range of patterns and textures. Wheels available for special pattern fields, (L shaped, argyles, etc.).

SOME OTHER MODELS IN THE SUPREME LINE OF PROFIT-KNITTING MACHINERY—

MODEL SAI-PP—Striped and Patterned 1 x 1 Rib—Also Swiss Rib and Interlock

MODEL MJ/N—Wide Diameter & Body Size Jersey

MODEL SAAF-C/N—Plain, Variable Striped and Patterned Jersey

MODEL MLVP/N—Pile, Loop, Plush, Plaited Patterned and Velveteen

MODEL BRW—1 x 1 and Half Cardigan Plain and Patterned Bulky Fabrics

MODEL ROF/N—Jacquard-Type Floatless Patterns

MODEL IRW-2

Unsurpassed Versatility In

"DOUBLE-JERSEY" "DOUBLE-KNIT"

Rib And Interlock Production

For further information or a demonstration of this machine in action, contact Supreme.

SUPREME
KNITTING MACHINE CO., INC.
94-02 104th STREET, OZONE PARK 16, N. Y.
Southern Representative and Showroom
Monroe Machinery Sales Co.
P.O. Box 342, MacArthur Circle, Monroe, N. C.

SIMPLIFIED CONTROLS

Easily adjusted to control both fabric elasticity and surface "birds-eye" effect. Can be readily set to produce pique fabrics in Swiss, French or other constructions.

DUAL RACEWAY

Needles of either raceway may be independently set in knit to tuck or knit to welt positioning.

AVAILABLE WITH

(1) "ROLL-O-MATIC" FEEDING DEVICES —Permit use of wide variety of yarns—Maintain uniform tension at knitting points, (2) VARIABLE SPEED MOTOR—For R.P.M. changes at the turn of a lever.

Plus All SUPREME Standard, Mill-Proven Construction Features

SK-199

CIRCLE 137 ON READER SERVICE CARD 137

DIRT-RESISTANT Tennantized floor allows faster sweeping. Saves manhours.

Why most money-making mills have TENNANT-maintained floors

Mills that make money *today* usually know their maintenance costs to a penny.

That's why about 9 out of 10 successful mills, large and small, use the TENNANT SYSTEM of Floor Maintenance.

They know, from their own cost records, that this system provides clean, bright floors *at the lowest cost per sq. ft. of any floor maintenance method* available today. Here's why:

SAVES MANHOURS—*Tennantized* floors have 3 times the dirt resistance of most textile floors. Saves cleaning time, cuts sweeping costs, etc.

How the TENNANT SYSTEM cuts floor care costs...

1 **SAVES TIME.** Dirt is easily wiped off surface.

2 **SAVES FLOOR SEAL.** Tennantized floors seldom need refinishing.

3 **SAVES BUFFING.** New method brightens floor; cuts buffing time as much as 80%.

REQUIRES LESS FLOOR SEAL—New custom-fitted TENNANT seals are *extra* durable, dirt-resistant and easy to clean. Cuts annual seal costs and recoating expense. WRITE TODAY *for full details. G. H. Tennant Co., 735K N. Lilac Drive, Minneapolis 22, Minn.*

TENNANT

The Textile Industry's Most Widely Used

FLOOR MAINTENANCE SYSTEM

Methods

Machines

Materials

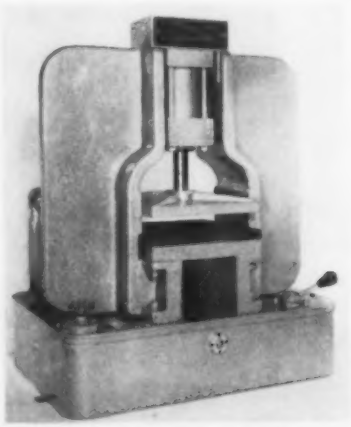
FLOOR MAINTENANCE SYSTEMS

138 CIRCLE 138 ON READER SERVICE CARD

Equipment & Supply News

. . . *Begins on page* 131

E-19—Concrete-floor coating prevents wear and dust formation. It also protects against oil, grease, and acid. The material is dissolved in water for easy application and a glass-like coating results. The floor can be used while it is being put on. Flexrock Co.



E-20—Sample cutter for laboratory use is electro-hydraulically operated. This unit is more powerful than a hand-operated type: It applies up to eight tons of pressure at the cutting surface. Using a hand control, it works on paper, textiles, plastic, rubber, and carpeting. Different size dies can be interchanged in a matter of seconds. Model No. 240-4 uses Aifa sample dies. Twing-Albert Instrument Co.

E-21—Data transmission by telephone is made easy with the Teledata 8-channel code transmitter-receiver. Messages are sent at speeds of 425 codes per minute. This system, which is used in conjunction with the Bell Data-Phone 100, works on the regular telephone line and eliminates the need for a full-time circuit. This Teledata unit may be either leased or purchased. Friden, Inc.

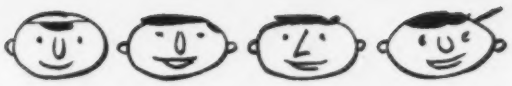
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-22—Width recorder works on any type of web or fabric. The unit indicates and permanently records width changes. When placed in a continuous-web processing line, the width recorder enables the operator to properly control the factors that govern the width of the material (tension, speed, and temperature). When the unit is used just prior to winding the finished fabric, the maximum-minimum width of the fabric is recorded. Also available is a unit that guides the fabric and at the same time records width. Fife Mfg. Co., Inc.

E-23—Tube fitting, called Swagelok Snubber, protects gages or other instruments against pulsating pressures. It can also serve as a filtering unit for liquids or gases. The unit is available in Type 316 stainless steel or bronze sintered elements. The fitting comes in sizes ranging from ⅛- to ⅜-in. OD tubing. Snubber can be removed easily for maintenance. Crawford Fitting Co.

E-24—Variable-speed belts come in wide range of sizes and types. Top widths vary from ⅞ to 3 inches and the standard lengths range from 26.4 to 170 inches. These belts feature fiber-reinforced synthetic rubber with high stretch resistance. The uniform notching on the underside provides flexibility without strain or distortion on small pulleys. Lovejoy Flexible Couplings Co.

. . . *Turn to page* 142



HAPPIER WORKERS

Less Effort, Greater Safety

HAPPIER BOSSES

Big Time and Cost Savings

Both Achieved by Use of

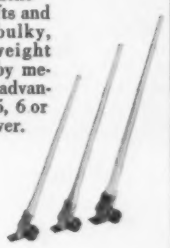
FAIRBANKS COST-CUTTER TRUCKS

Think of trucks as tools, and you recognize that the right truck makes lighter work of materials handling. With the right truck (the right tool) your men do more work with less effort, and with greater safety. Select your cost-cutter truck from Fairbanks' complete line of two-wheel hand and platform hand trucks. Available from leading distributors in all principal cities.

Barrel Stand Fig. No. 51 — for handling, storing and draining of steel drums. One man safely rocks full drum to drain position and wheels it.

All-Wood Dolly. Fig. T-1114 — Complete mobility for safer handling of unwieldy, bulky objects. Oak frame on four LOCKWELD double ballrace swivel casters.

Lever Trucks— Safely lifts and moves bulky, heavy weight objects by mechanical advantage of 5, 6 or 7 foot lever.



Barrel Truck. Fig. No. 9090— Without ever being touched, barrels, drums, and kegs of any height are safely loaded and unloaded.

General Purpose Truck. Fig. 9215-S— Comfortable "feel" and general usefulness promotes use of truck, and safer movement of objects of every description.

"Stairmaster" Appliance Truck Fig. No. A-1 — Protects and provides safer movement over curbs and steps. Load securely strapped to rubber-sheathed, lightweight, all-steel frame. Patented.

Buy Through Distributors. Fairbanks products are stocked, sold and recommended by leading distributors in all the principal cities across the nation.

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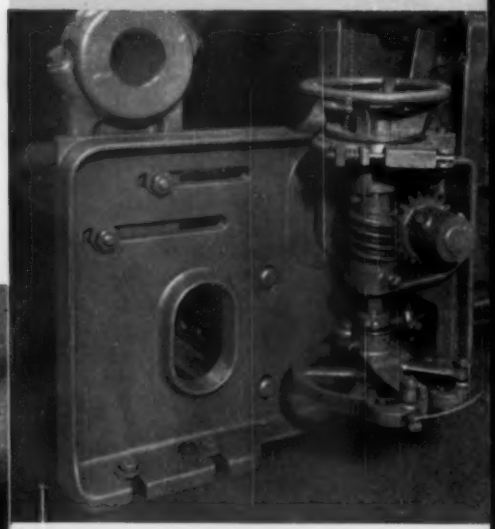
Executive Office: 393 Lafayette Street, New York 3, New York

Valves • Dart Unions • Casters • Trucks • Wheels

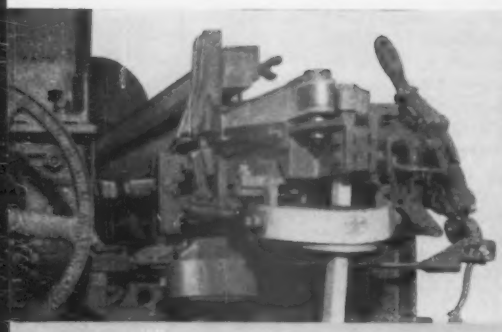
520 Atlantic Ave. Boston 10, Mass. | 2600 S. Throop St. Chicago 8, Ill. | 393 Lafayette St. New York 3, N. Y. | 15 Stanwix St. Pittsburgh 22, Pa. | 202 Division St. Rome, Ga.

Factories — Binghamton, N. Y. and Rome, Ga.

X-3 a new dim

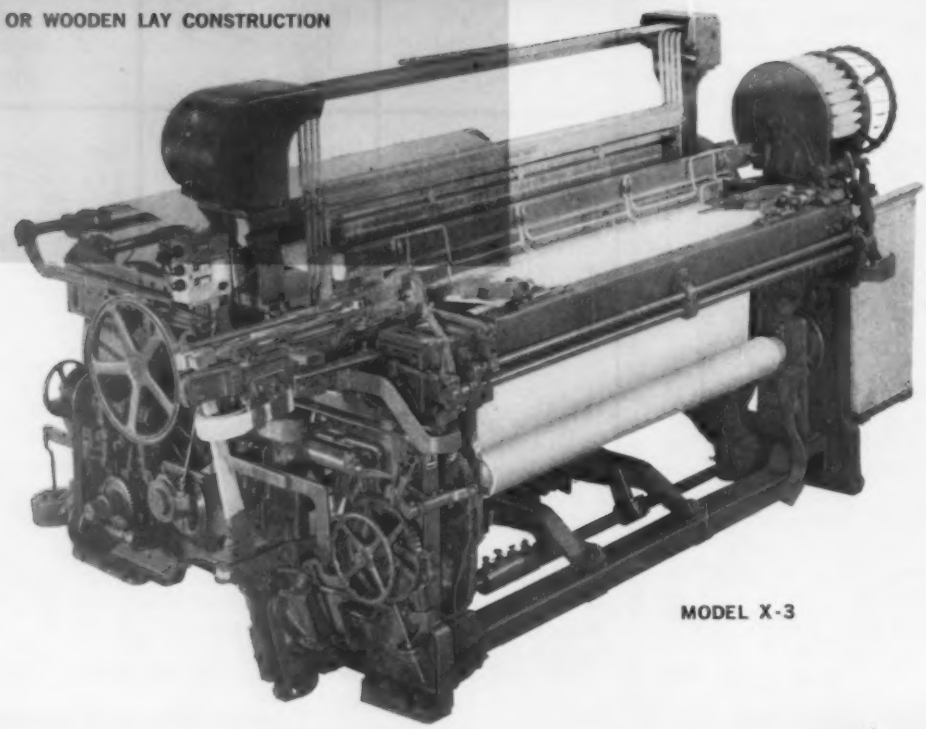


LET - OFFS
Bartlett
Tru-Tension
Hunt



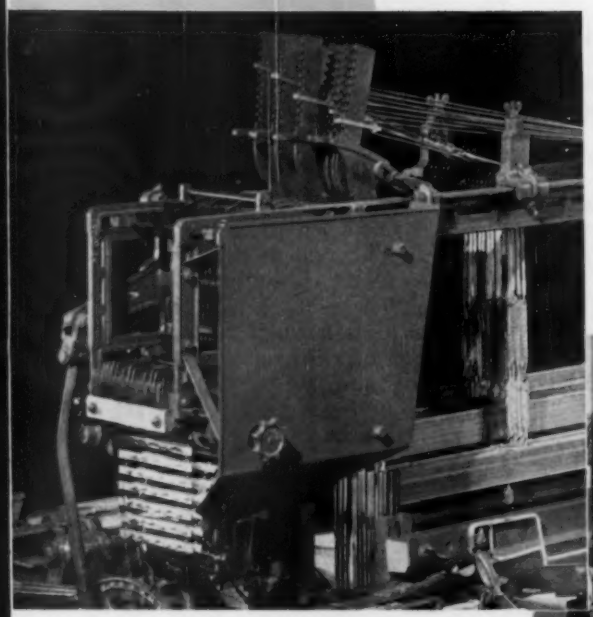
IMPROVED TAKE-UPS
to weave a complete range of Cotton and Synthetic fabrics.

ALUMINUM OR WOODEN LAY CONSTRUCTION

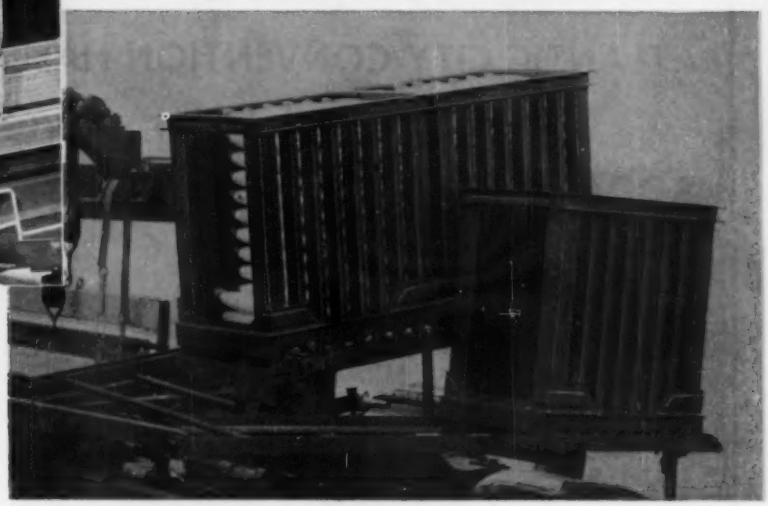


MODEL X-3

ension in weaving



TOP MOTION
New strengthened Dobby — 16 harnesses, 15/32 Gauge
or — 20 harnesses, 3/8 Gauge
Clock Spring up to 6 harnesses



AUTOMATIC FILLING MAGAZINE

The X-3 Model Loom is designed to weave all of the fabrics normally woven on the X-2 and most synthetic fabrics commonly woven on the XD. This loom provides *greater versatility, increased speed, higher quality goods, and lower weave room costs.*

A weight increase of over 500 pounds in frame and shafting*, contributes to added stability, reduces vibration, and permits higher speeds regardless of fabric being woven.

Incorporated in the design of the X-3 are many new materials, parts and mechanisms found to be advantageous to greater loom productivity.

**As compared with a Draper X-2 Model Loom*

D DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N. C. • SPARTANBURG, S. C.

"WORLD'S FAIR OF THE KNITTING INDUSTRY"

GO to Your GREATEST Show!

Join thousands of knitters from all U. S., Canada and many foreign countries coming

to find WHAT'S NEW at the Fabulous 45th

KNITTING ARTS EXHIBITION

filling five profit-packed days at

ATLANTIC CITY CONVENTION HALL

Monday through Friday

APRIL 24, 25, 26, 27, 28, 1961

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TOPS for . . . Greatest-ever area of floor space used

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Get details from ROBERT T. KENWORTHY, INC., **Exposition Management**

KNITTING ARTS EXHIBITION

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Telephone MUrray Hill 5-2250

Equipment & Supply News

. . . *Begins on page* 131

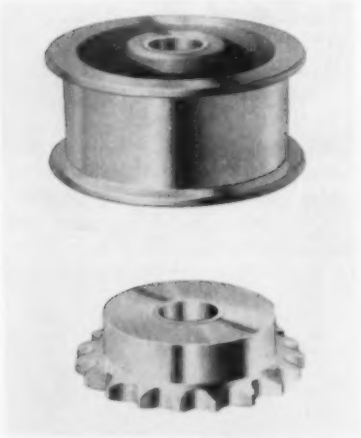
E-25—Precision balance, for weighing fibers and yarns, has a double-hook design. By counterweighing the left-hand hook, this balance takes loads up to three times the scale value. The scale ranges from 0-3 mg., up to 0-50 grams. Accuracy is ± 0.1%. A vernier index permits readings to 1/10 scale division. Weighing 10 pounds, the unit measures 13x6x10 inches. Federal Pacific Electric Co.

E-26—Drive tensioner, which mounts on a shaft, is used to take up chain or belt drive slack. For exact tensioning the unit rotates and locks in any position on a 360-deg. arc. This tensioner comes with a 2-in. shaft; 3- or 4-in. shafts are available for multiwidth drives. Bronzed bushed sprocket and pulley idlers are available in 14 standard stock sizes. Brewer Machine & Gear Co.

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-27—Safety gloves come with double-wear, reversible thumb. Both sides of the glove can be used as the palm. The extra thumb is kept out of the way by an elastic web. These gloves, No. 482-2, also have a large safety cuff for added protection. David's Gloves, Inc.

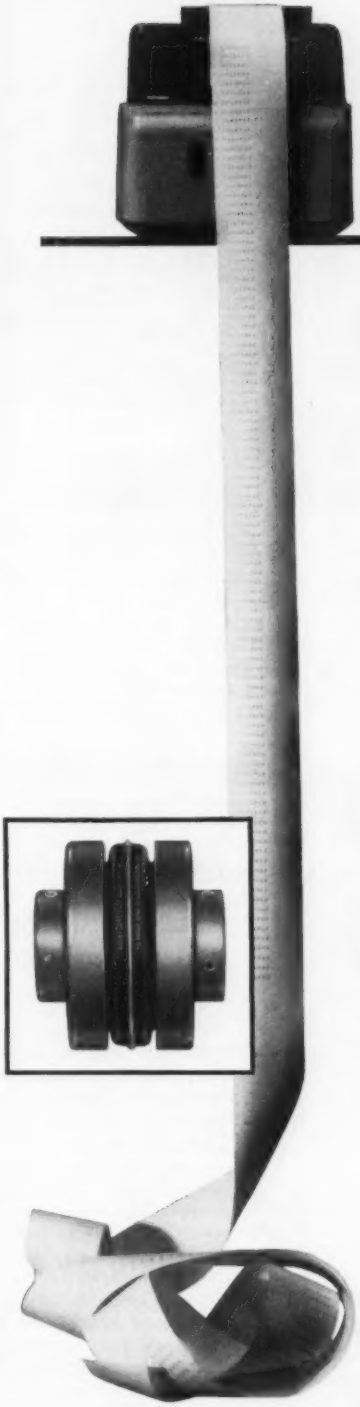
E-28—Steel-band saw blades are designed for high-speed on heavy-duty sawing machines. A special heat treatment makes the tooth tips resistant to wear. These units are precision welded (which increases flex life) to customer requirements. W. O. Barnes Co., Inc.



E-29—Bronzed bushed idlers are now available in 14 standard sizes. All idlers have a 1-in. bore. Sprockets come in all sizes from No. 35 to No. 80 roller chain. Pulleys are made in 1-, 2-, and 3-in. widths with a 4-in. diameter. Brewer Machine & Gear Co.

E-30—Air purifier and deodorizer services areas up to 1,000 square feet such as offices, test laboratories, and conference rooms. It runs on electricity and is nonflammable and nontoxic. Unit uses an industrial deodorizer that lasts for 150 hours. Aireactor Corp.

. . . *Turn to page* 144



IT ALL ADDS UP TO THIS . . .

YOU CAN'T BUY SURE-FLEX PERFORMANCE IN ANY OTHER COUPLING AT TWICE THE PRICE

Wood's Sure-Flex Couplings not only have full, 4-way flexing action, but absorb from 5 to 15 times more shock and vibration than other leading flexible couplings. They swallow all types and combinations of angular and parallel misalignment and end float. Sure-Flex couplings are simple, easy to install. Standard models have only 4 basic parts . . . no bolts, nuts, screws, clamps or covers. And, they last endlessly (6¼ million 15° peak torque flexes with no sign of wear). There's no metal-to-metal contact, no wear, no need for lubrication. Available in capacities up to 500 hp at unity service factor . . . in standard, junior, bushed and spacer types. There's a lot more to tell about Sure-Flex.

Write for BULLETIN 5103.

Woods

T. B. WOOD'S SONS COMPANY · CHAMBERSBURG, PENNSYLVANIA

SF/2361 ATLANTA · CAMBRIDGE · CHICAGO · CLEVELAND · DALLAS

TOMPKINS SPRING NEEDLE D-1 CIRCULAR KNITTING CARPET MACHINE

Now you can produce 12 or 15-ft. wide carpet and carpet backing — including paper scrim — *faster, at lower cost* with a 54" or 70" TOMPKINS D-1. Both models use standard Tompkins parts *plus* the big quality and economy bonus of the time-proven Tompkins knitting principle. *Write for full details . . .*
TOMPKINS BROS. CO. • 623 Oneida St. • Syracuse 4, N.Y.
Circular Spring & Latch Needle Knitting Machines Since 1846

CIRCLE 254 ON READER SERVICE CARD

WRINKLE-FREE
CONTINUOUS-ROLL OPERATION

KAY ANTI-WRINKLE SLAT EXPANDER

By guarding your processing line against wrinkling, the Kay Slat Expander:

1. Allows faster, more efficient machine operation
2. Reduces losses through rejection
3. Assures tighter, neater rolls
4. Assures higher-quality printing and closer register

Supplied with wooden slats for use at room temp. and aluminum for use in ovens, to 550°.

Write for a data sheet

KAY MACHINE COMPANY INC.
Expanders and Rollers

130 Paterson Ave., E. Rutherford, N. J., WEbster 3-4641
EXPORT OFFICE: 401 Broadway, New York 13, N. Y.
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The biggest step in business... the short distance from the middle to the top

Companies are still canvassing colleges like crazy for bright young engineers and technologists...

But what about the man with ten or more years invested in his company? Here he is, ready to take on heavier responsibility. How much longer must he wait?

Upstairs in his company, management will tell you their biggest job is finding new top talent. And what they are seeking most in a man is something more than just his proficiency in his post.

They're seeking an alertness to all phases of the business... long range planning, policy-making, new product development and research ... breadth as well as depth.

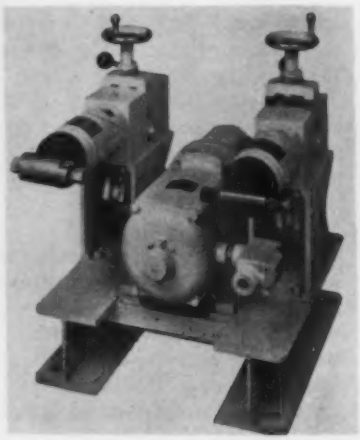
The men who edit this particular McGraw-Hill publication for you, recognized this responsibility long ago. They answer it in these pages. Here, is the perspective you need to push ahead. And as you read, keep reaching, for...

Men who read more...earn more!

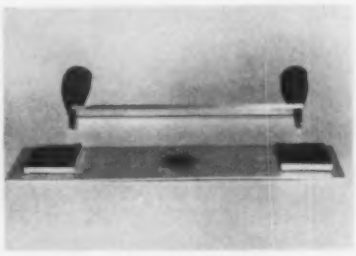
Equipment & Supply News

. . . *Begins on page* 131

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.



E - 31 — Chemical - proportioning pumps for small volumes of fluid takes pressures up to 30,000 psi. The pump capacities range from 0.84 to 6.44 gph. at pressures from 7,500 to 30,000 psi. These pumps have an adjustable stroke, which, regardless of the length of travel, completely evacuates the cylinder and permits efficient pumping of highly-compressible liquids. American Instrument Co., Inc.



E-32—Shrinkage marking device for stamping test samples has been improved. The marking dies are set in an aluminum spacer bar and equipped with handles. The unit is furnished with sets of covered stamp pads mounted on a plate. Commercial marking inks are used in the stamp pads. This marker is available in 10-in. and 18-in. gage lengths. Better Fabrics Testing Bureau, Inc.

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"No more tight ends in our warps"

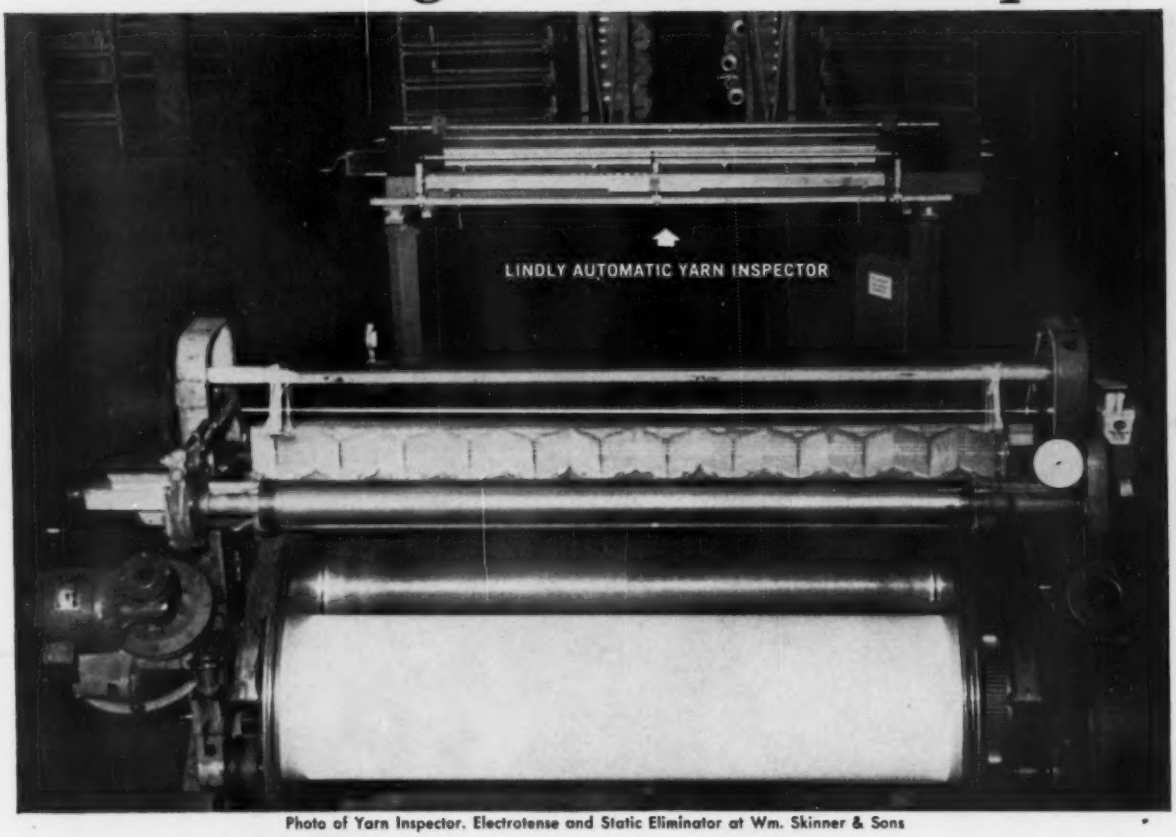
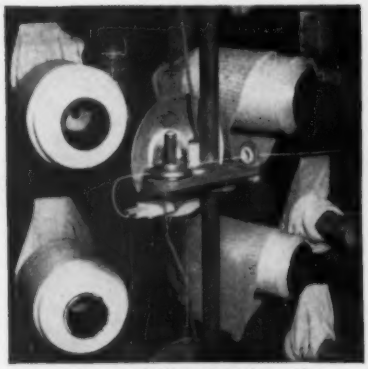


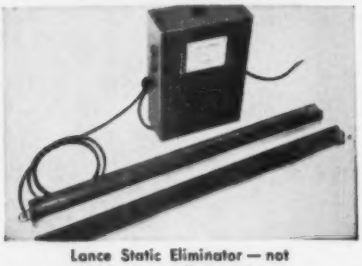
Photo of Yarn Inspector, Electrotense and Static Eliminator at Wm. Skinner & Sons

The LINDLY Electronic Triumvirate Gets the Credit

YARN INSPECTOR – ELECTROTENSE – STATIC ELIMINATOR



Closeup of Electrotense in creel.



Lance Static Eliminator — not visible in installation photo.

When we asked William Skinner & Sons, Holyoke, Mass. for a report on their installation of a Lindly Automatic Warp Yarn Inspector, the Lindy Electrotense in their creel and a Lindy Static Eliminator, their answer was prompt and enthusiastic: "No more tight ends in our warps."

However, when we asked them to go back temporarily to warping without the Lindly controls, so we could get some comparative "before" data, they flatly refused. "Why should we go through that again, when we don't have to?" they asked, and we can't blame them.

Since Skinner didn't need comparative data to prove the value of the Lindly Electronic Triumvirate, we doubt if you would either. So why not try an installation? Here's what the triumvirate is and does:

THE LINDLY AUTOMATIC YARN INSPECTOR is a high-speed, ultra sensitive photo-electric instrument for detecting yarn defects in warps, such as broken filaments, strip-backs and fluff balls. It can be made to operate a counter, a signalling device, or to actuate a machine stop switch — singly or in combination for any degree of imperfection.

THE LINDLY ELECTROTENSE for warp creels, winders, twisters, knitting machines, etc. provides completely uniform tension for any number of ends and the tension for all ends can be varied by turning only **one** dial. It consists of two conventional discs with an electromagnetic coil beneath. The lower disc is of non-magnetic brass, while the upper disc is of magnetic iron. When the coil is energized through a central electronic control, the upper disc is attracted downward, pressing the yarn between it and the lower disc in any degree desired. The pressure is pulsating, which prevents backup of twist and helps keep the tension discs clean and free turning.

LANCE STATIC ELIMINATOR, made in a variety of models, has a textile application wherever static electricity is a problem. It carries a high voltage discharge from pointed electrodes into the air, causing the fibre to be surrounded by ionized air, which serves to discharge the static electricity accumulated all around the surface of the fibre. Whereas the voltage is high enough to ionize effectively the air, it cannot harm the operator, who accidentally comes in contact with the electrodes.

Write us for more information about "eliminating tight ends in your synthetic fibre warps." No obligations.

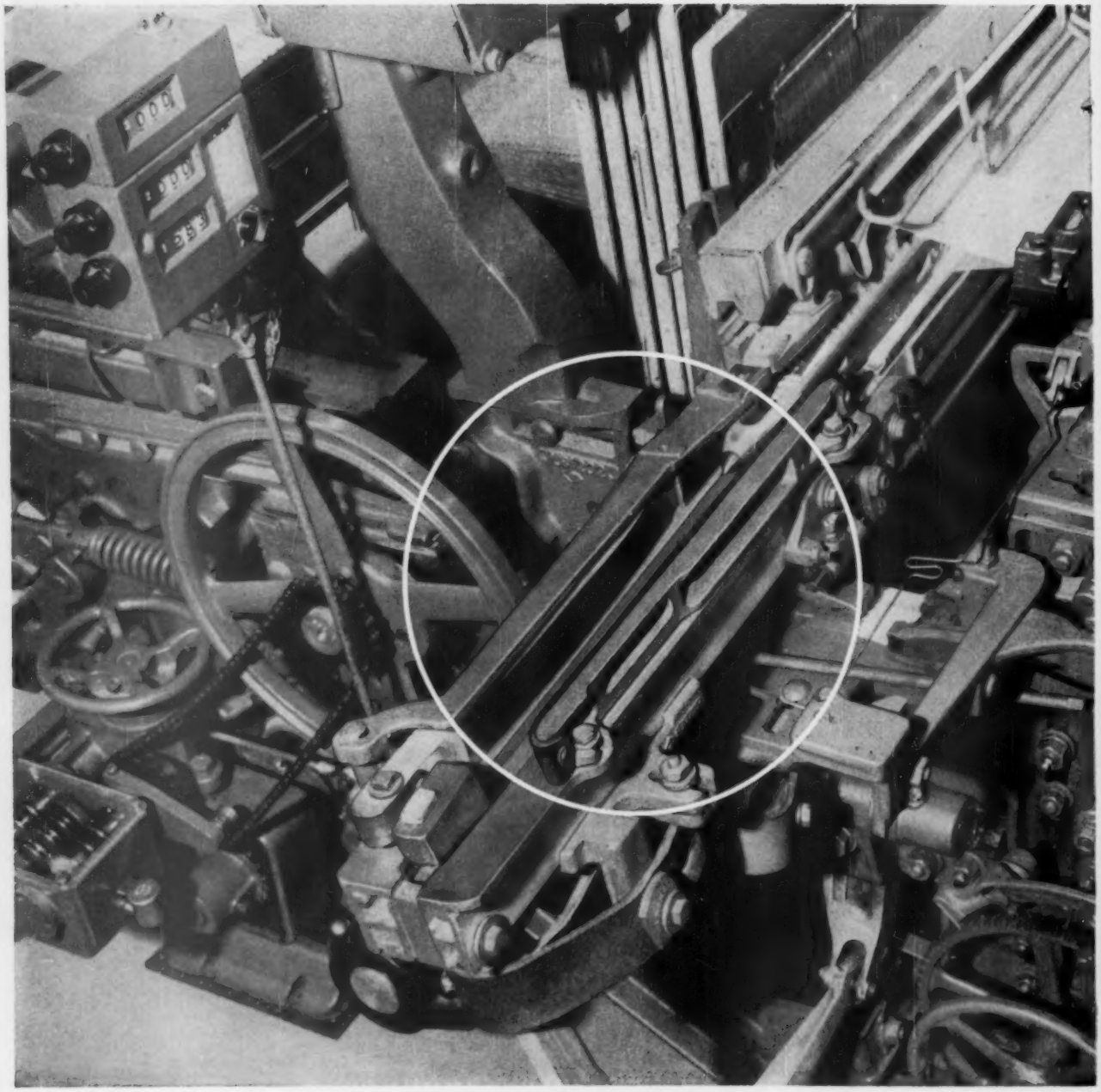
FOSTER MACHINE COMPANY

ELECTRONIC SALES DIVISION, DEPARTMENT TW-2

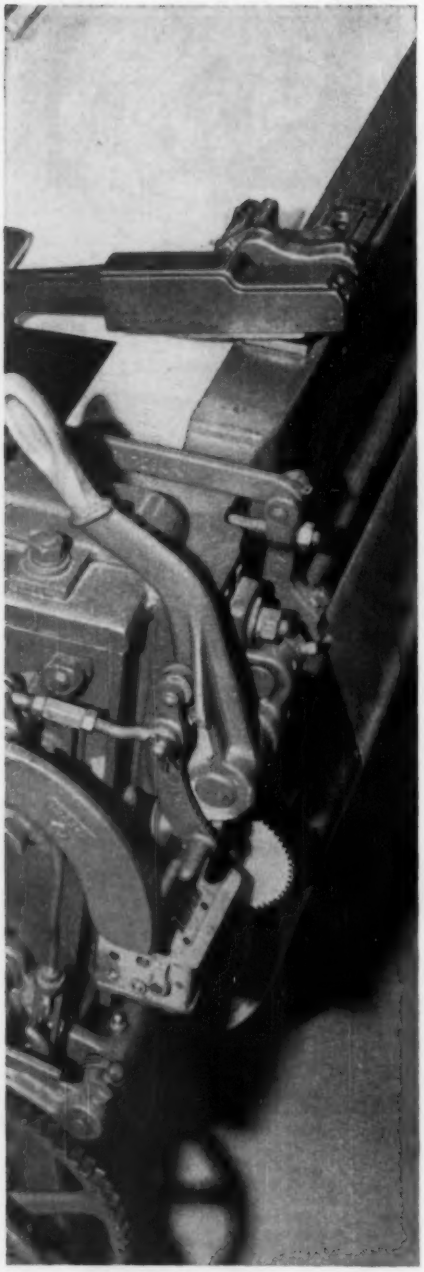
Westfield, Massachusetts, U.S.A.

Southern Office, Johnston Bldg., Charlotte, N. C.

468-0



CN-889 is a tough, dimensionally stable fiber material, unaffected by changes in temperature and humidity. It requires less break-in, less resetting, less frequent replacement—and thus adds productive hours to your looms.



New binder material reduces loom down time

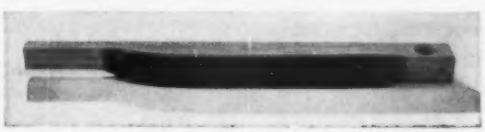
Armstrong CN-889 — a synthetic covering for loom binders and box fronts—can open the way to important savings in your weave room.

CN-889 reduces break-in time and requires less resetting than natural materials. It wears much longer, even where heavy plastic shuttles are used. This means fewer (and shorter) shutdowns for adjustment and replacement of binder covering . . . and more productive hours for your looms.

This superior performance is possible because CN-889 is more uniform than conventional materials. Dimensionally stable, it is unaffected by swings in temperature and humidity that can impair the performance of natural covering.

Your Armstrong man will arrange for a test on your looms. Call him or write Armstrong Cork Company, 6902 Dauphin Street, Lancaster, Pennsylvania.

Armstrong LOOM SUPPLIES



Equipment & Supply News

. . . *Begins on page* 131

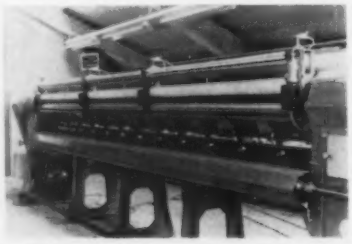
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-33—Marker, with a felt-tip applicator, now comes with odor-free ink. The ink dries instantly on porous surfaces and is smudgeproof, waterproof, and indelible on any surface. This marker is available in eight colors. Speedry Chemical Products, Inc.

E-34—Tool bench comes with 12-gage-steel work surface. This portable unit is 30 inches wide by 28 inches deep. It is available with drawers (mounted on nylon rollers) or doors. The bench also is available with a Masonite work top. Equipto

E-35—Fork lift truck comes with removable push-pull die handling attachment. This electric powered truck has a remote control, with six feet of coil cord for lift-lower and push-pull control of the die handling unit. Capacity is 4,000 pounds. Lewis-Shepard.

E-36—Floor seals, for wood or concrete floors, are urethane polymeric components. The abrasion coefficient is 0.027. The product dries rapidly to a high gloss and can be stripped from the floor if desired. It is non-toxic and non-irritating. Puritan Chemical Co.



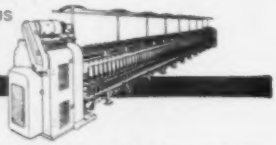
E-37—Tufting machine for ⅛-in.-gage work has a twin-nip triple-roller yarn feed. A special plastic-coated roll is sandwiched between top and bottom rolls that have air cylinders on each end to control the pressure at the nip. This feed serves to cold iron the yarns (compressing splices), which raises tufting efficiencies and reduces downtime. A photo-electric safety unit protects the operator because if his hand is brought near the rolls the nip automatically opens to prevent operator injury. British Tufting Machinery Ltd.

E-38—Clipper attachment eliminates the need for manual trimming on knitted fabrics. This unit, called Knitrol Clipper 1-C, trims the yarn as it is being knitted. This reduces yarn consumption as much as 40%, depending on the pattern. Pneumafil Corp.

. . . *Turn to page* 150

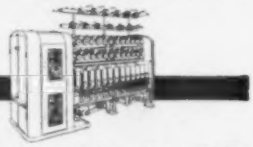
Only the adept hands of Whitin could create such a complete line of complex and precisely-built machines as is exemplified by the High-Production twisters shown below.

CONTINUOUS SPINNING TAKE-UP



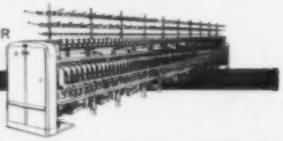
The Continuous Ring Spinning Take-Up machine is especially designed for processing Rayon, Acrilic and various other man-made continuous filament yarns.

DRAW TWISTER



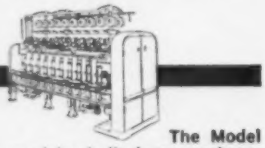
Universally recognized by the world's leading producers of nylon and polyester yarns as the outstanding Draw Twister.

"P3" PACEMAKER TWISTER



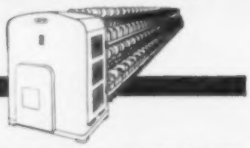
The Model "P3" is our latest development in high speed ring twisting designed especially for processing continuous filament glass, nylon and polyester fibers.

"C6" TWISTER



The Model "C6" is a precision-built large package, high-speed twister for continuous filament fibers. Millions of pounds of acetate yarns are produced yearly on this model.

"RL" UPSTROKE TWISTER



Another Whitin first — is the Model RL, designed for heavy-duty upstroke twisting. Now predominantly used for producing tire cord and carpet yarns. Packages carry from 6 to 10 lbs., depending on type of fiber being processed.

WHITIN

CIRCLE 148 ON READER SERVICE CARD

Adept...

in the processing of man-made fibers

The world of man-made fibers is a fascinating one — fast-paced, sophisticated — ever-changing!

The successful creation of fibers in the laboratory has been amazing. Equally amazing, too, has been the development of the processing machinery which enables them to achieve their maximum potentials.

Whitin has teamed — for over 30 of its 130 successful years of experience in building textile machinery — with the pioneers and leaders of this industry. With their full confidence, Whitin has applied its immense facilities and very considerable talent to designing this complex machinery — to building it with utmost precision.

Today, the world's leading producers of rayon, acetate, nylon, polyester and polypropylene fibers are processing vast quantities of top quality yarns on various types of Whitin machinery, including Continuous Spinning Take-up equipment, Draw Twisters, Special Purpose Ring Twisters and Upstroke Twisters.

It's as simple as this. The machinery you need now, or to process the *fibers of the future*, should be entrusted to hands that are skilled, to hands that are experienced — the adept hands of Whitin.

WHITIN
machine works

WHITINSVILLE • MASSACHUSETTS

DURANT

HEAVY-DUTY PREDETERMINED COUNTER

ROTARY MODEL 5-R-7-Q-R with lever reset. Also stroke model. Both available with totalizer.

- **LONGEST LIFE IN HEAVY DUTY TEXTILE APPLICATION**

  Specifically designed for heavy duty textile applications such as warpers, slashers, sliver winders where uniform lengths are mandatory. This rugged predetermined counter is a precision instrument with a built-in safety margin for the most severe operating conditions. Proven through years of field usage, it will give the longest possible service with minimum maintenance.

- **TRUE COUNT INDICATED AS RUN IS BEING MADE**

  It will measure yardage at any predetermined setting, stop the equipment to eliminate overruns and allow maximum production without waste. Positive locking assures reliable counting at all times; the true count is indicated as the run is progressing.

- **QUICK RESET LEVER**

  Available with wing nut or quick lever reset for fast positive action.

- **HIGHEST QUALITY MATERIALS**

  The Durant will outlive any comparable counter. Heavy 5/16" drive shaft is accurate-ground and polished steel. Heavy duty double worm drive provides longer count life.

- **NO SQUINT; NO GUESS**

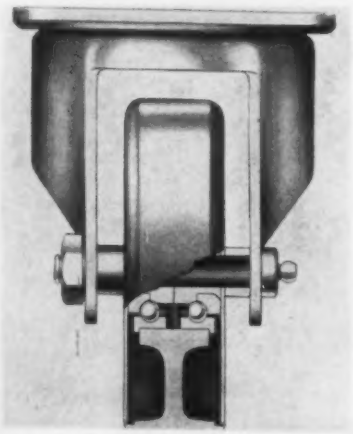
  Larger figures 11/32" high are bold black on white, easy to read at a glance. Three leads permit use with open or closed circuit. Rugged case with snap-down top and piano-type hinge keeps out dust and lint.

Send for Catalog 45

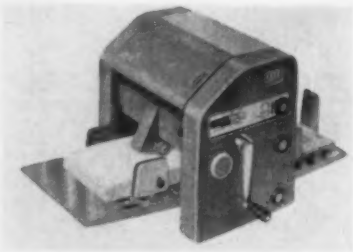
DURANT MANUFACTURING COMPANY

1931 N. Buffum Street, Milwaukee 2, Wisconsin | 31 Thurbers Avenue, Providence 5, R. I.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

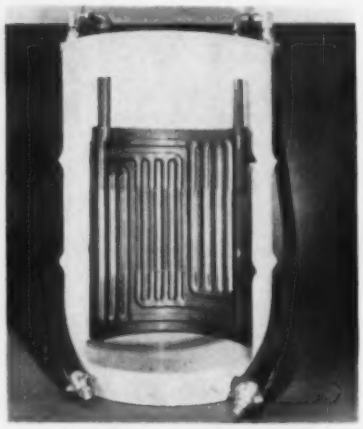


E-39—Tuck caster, especially designed for the textile industry, has a tangleproof construction. This plate-type caster comes in swivel or rigid type and the wheel is four inches in diameter with a 1¼-in. tread. The axle, which has a pressure-type grease fitting, is removable. All exposed surfaces are zinc plated. Ball bearings in the wheel hub assure easy starting and rolling. Bassick Co.



E-40—Duplicator comes with built-in lights for the receiving tray, feed tray, inking compartment, and the control panel. The machine adjusts from 9x15 down to 3x4 size paper. It has a twin-cylinder ink roller, silk-screen carrier, and a sealed ink cartridge. The duplicator holds a full ream of 20-lb. paper on the self-elevating feed tray. Rex-Rotary Distributing Corp.

E-41—Water heater uses gasoline for its heat source. The unit has a pulsation combustion system (such as the German V-1 rocket). A coil of cupro-nickel tubing leads from the combustion chamber acting as the heat transfer to the surrounding water. Lucas-Rotax Ltd.

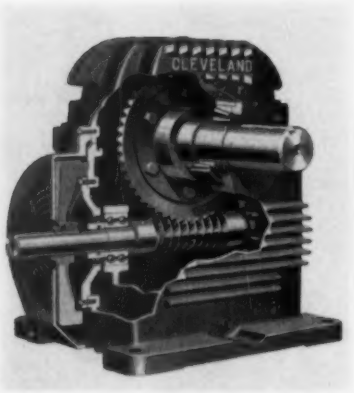


E-42—Drum warmer for 55-gal. drums, is immersed in the fluid. This unit fits the contour of the drum and is available in either serpentine or header construction. Inlet and outlet connections are outside the drum for ease of hook-up. Tranter Mfg. Inc.

E-43—Hydraulic-cylinder cushion has self-regulating, floating action. It comes in a complete range for cylinders with 1½- to 14-in. bores. This cushion permits faster starts and also acts as a check valve. Miller Fluid Power Div., Flick-Reedy Corp.

E-44—Fuel economizer for oil-fired burners, can reduce fuel oil cost up to 25%. The unit injects an envelope of preheated air (up to 875 F.) around the oil-burner flames. This produces rapid and complete combustion. Farris Combustion Control Corp.

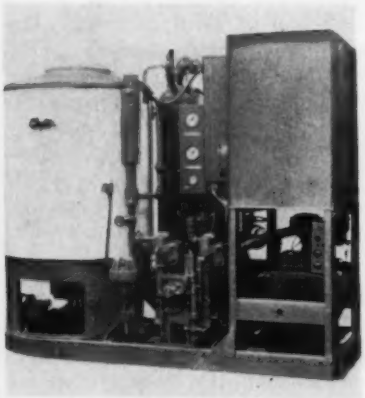
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.



E-45—Speed reducer comes in nine sizes ranging from 3- to 12-in. center distances. The ratios range from 4 1/7:1 up to 95:1 for fractional to 175-hp. drives. These units have a fan built in for cooling. This plastic or aluminum fan, mounted on the input side of the worm shaft, is effective in either direction of rotation. This eliminates an oil seal. Cleveland Worm & Gear Div.

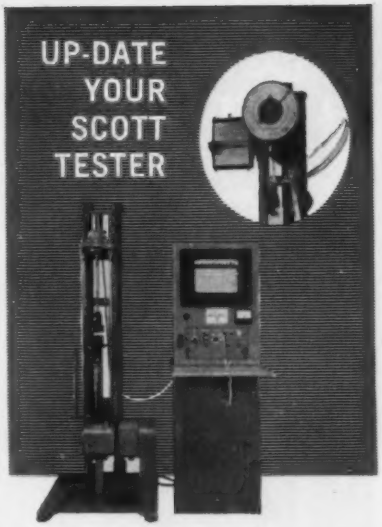
E-47—Continuous mixer handles any liquid that can be pumped. Because the unit is completely sealed, air entrainment is eliminated and flammable materials can be handled safely. Mixers can be installed in series for fine blending at high flow rates or for mixing different materials separately. The unit is powered by motors ranging from 1 to 10 horsepower. Gabb Special Products, Inc.

E-46—Tote box, made from high-density polyethylene, holds up to 18 gallons. Each unit weighs 6 pounds and measures 16x20 inches. The container has a snug fitting lid that keeps out moisture. When empty, the boxes nest for storage. Como Plastics, Inc.



E-48—Steam generator is self-contained, fully automatic, and portable. This 110-hp., oil-fired unit requires only water and a fuel supply. Full steam pressure is obtained in three minutes. Unit has a condensate-return tank and a water-treatment tank. Clayton Mfg. Co.

. . . *Turn to page* 152

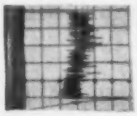


Low Cost ACCR-O-METER Conversion Kit gives you ultra-precise electronic testing—is adaptable to all Scott Tester Models in J and L Series, and Model X-3 and XL Testers.

Highly efficient and economical ACCR-O-METER Conversion Kit is essentially the load measuring system taken from the Scott Model CRE for adaptation to your vertical Scott Tester. Designed by Scott for constant-rate-of-extension testing, ACCR-O-METER gives you the advantages of easy, automatic, inertialess *electronic* testing—at modest cost! Quick, too . . . all it takes is substitution of bolted-on units. No machining, no welding. Here are just a few of the time-saving, money-saving features of the ACCR-O-METER:

INERTIALESS WEIGHING Electronic strain gage weighing eliminates weight-handling. Load cell has *interchangeable* force dividers for 30 different test capacities to 2000 lbs. . . . for greater testing convenience and economy!

PUSH-BUTTON SIMPLICITY Fingertip controls — effortless operation. Available with wide range chart speeds . . . plus "time-to-break" and "pipping" circuit for special testing. More tests per hour, in the lab, or on production!



STRESS-STRAIN PICTURIZED Electronic weighing picturizes stress-strain data on permanent strip chart, giving ample magnification for practically all materials.

Interested? Write for complete facts and prices. (Be sure to state model of your present Scott Tester.) Scott Testers Inc., 95 Blackstone Street, Providence, R. I. Tel. DExter 1-5650 (Area Code 401).

SCOTT TESTERS

THE SURE TEST . . . SCOTT!

Out Goes
LINT · FLY
TRASH
from your
SPINNING FRAMES
and ROVING FRAMES
Quickly • Economically

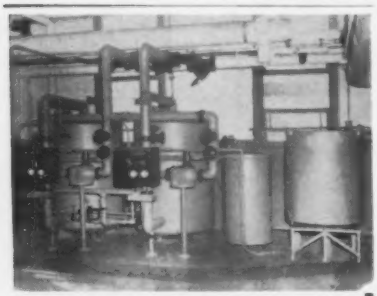
by using
M-B AMOSKEAG PNEUMATIC ROLL PICKER
New, Improved MODEL 59

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

Write for Literature

M-B PRODUCTS
46 VICTOR AVE., Div. 16
DETROIT 3, MICHIGAN

CIRCLE 255 ON READER SERVICE CARD



INVERSAND WATER SOFTENER PLANT
producing
CLEAR IRON-FREE 100% SOFT WATER
Often For As Little As 1¢ per 1000 Gallons

Troubled with harshness, poor finish, uneven shades, redyes, seconds, and other product difficulties—?? The secret of uniformity may lie in your water supply. May we check it for you?

HUNGERFORD & TERRY, INC.
Clayton 9 New Jersey

Equipment & Supply News

. . . *Begins on page* 131

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-49—Cloth straightener eliminates the need for hand straightening of fabric for printing operations. The unit has four optical scanners beneath the cloth. Signals are fed to a magnetic amplifier that relays signals for skew corrections. American Cloth-Strait Co.

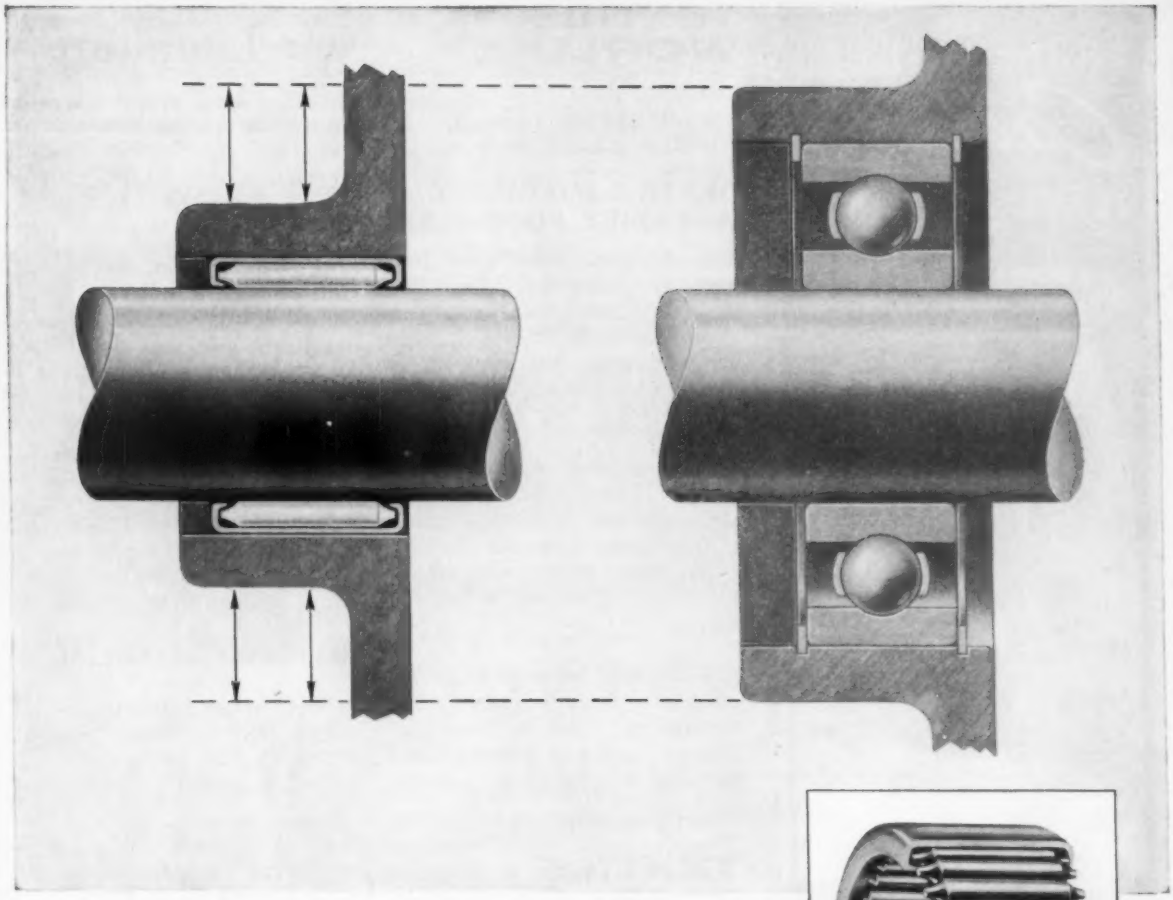
E-50—Adhesive applicator has pushbutton control on the brush barrel for instant flow control. The unit feeds adhesive through a flexible hose directly to the brush by air pressure. Applicator comes in 2- and 5-gal. capacities, with air-pressure regulator and three outlets. Each brush has a 6-ft. hose, which allows a maximum freedom of movement for production work. B. B. Chemical Co.

E-51—Hygrometer uses a principle of vapor diffusion through a porous plate. This unit eliminates the need for additional calculations because humidity readings are made directly from a self-contained scale. Readings are accurate within 1%. This hygrometer is designed to eliminate recording variations. It has high precision with a tolerance of about 2%. Comes with a built-in thermometer. Sueger.

E-52—Vacuum floor cleaner features mobility of gasoline models without fumes or odors. This unit uses propane or butane, which burns clean and eliminates objectionable fumes. The vacuum cleans a 22-in. path. It picks up dust, dirt, and trash at a rate of 20,000 square feet an hour. Bulky trash (coffee cups) is sucked up by opening a remotely controlled litterdoor. Handling Devices Co., Inc.

E-53 — Bearing take-up frame comes in 11 sizes. These frames take any type of bearing (babbitted, bronze, ball, or roller) in any two-bolt pillow block with mounting holes up to ⅝ inch. With this unit horizontal bearing adjustments can be made within a range of 6 to 24 inches. It accommodates bearing-shaft sizes from ⅝ to $2\frac{7}{16}$ inches in diameter. Frames are steel channel. Link-Belt Co.

E-54—Electric ironing machine uses an aluminum roll for accurate temperature control. The unit is used for brushed materials to impart a lustrous finish. The machine operates at 2 to 15 ypm. with a range of 200 to 500 F. Frank W. Egan & Co.

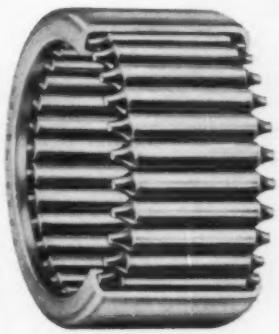


Designed for Compactness... Torrington Needle Bearings

Simpler, more compact design is possible wherever Torrington Needle Bearings are put to work in eliminating friction problems.

These outstanding bearings offer a higher radial load capacity than any other bearing of comparable size. They are more compact, lighter in weight, and are lower in unit cost. The full complement of small-diameter precision rollers insures exceptional antifriction performance and long, maintenance-free service life. The turned-in lips on the outer shell guarantee positive roller retention. Installation and assembly are fast, simple, economical.

The unmatched design and production advantages of Torrington Needle Bearings have been proved in applications ranging from office machines to automobiles, washing machines to earth-moving machinery. Give *your* product the benefit of our antifriction know-how. Write or call Torrington—maker of every basic type of antifriction bearing.



TORRINGTON NEEDLE BEARINGS FEATURE:

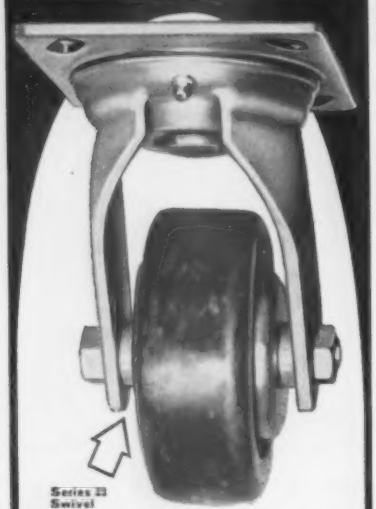
- Full complement of retained rollers
- Unequalled radial load capacity
- Low coefficient of starting and running friction
- Low unit cost
- Long service life
- Compactness and light weight
- Run directly on hardened shafts
- Permit use of larger and stiffer shafts

progress through precision **TORRINGTON BEARINGS**

THE TORRINGTON COMPANY Torrington, Conn. • South Bend 21, Indiana

CIRCLE 153 ON READER SERVICE CARD 153

THREAD GUARD
Casters
for the
TEXTILE INDUSTRY

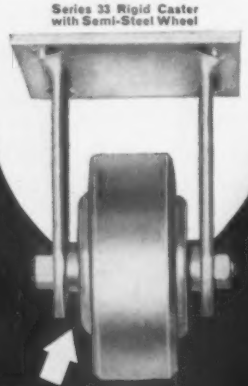


Series 33 Swivel Caster with floor protective Texite Wheel. Note extra clearance for easier cleaning.

Designed especially for maintenance-free Textile mill application, the economical new Albion Series 33 casters offer a smooth, wide-spaced fork with close-fitting pressed steel thread guards around the wheel hub. Spacer tubes fitted between the fork legs and thread guards provide ample clearance for easy cleaning without dismantling. The new Series 33 is stocked in 4", 5" or 6" swivel and rigid models with choice of semi-steel or Texite wheels. Special sizes and/or features also available.

Call today—for full information, specifications and surprisingly low prices on the new Series 33.

Series 33 Rigid Caster with Semi-Steel Wheel



ai ALBION INDUSTRIES, INC.
Albion, Michigan

TEXTILE WORLD . . . New Literature

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

TEXTILE MACHINERY & AUXILIARY EQUIPMENT

L-1—Dielectric ovens (both batch and conveyorized types) for baking, drying and curing, are illustrated and described in bulletin 60-E. Also radio-frequency generators for applicators or electrodes. Young Brothers Co.

L-2—Controlled volume pumps, features selection-data guide, materials-selection charts, and capacity-pressure tables in an extensive, 32-p. guide. Many pump models are pictured and illustrated throughout. Milton Roy Co.

L-3—Vertical compressors are featured in an 8-p., two-color catalog. Illustrations, schematic breakdown of models, and a chart listing manufacturing data for all the available models are included. Bury Compressor Co.

L-4—Bench scales, for industrial and commercial weighing, are discussed in data sheet. Specifications are listed. Also magnified portions of the equipment are pictured for understanding. Diagrams included. Exact Weight Scale Co.

L-5—Bow spreader roll for textile fabrics is illustrated and described in a 4-p. folder. Detail photographs show three specific applications. Included is a personalized specification form. Rodney Hunt Machine Co.

MATERIAL HANDLING

L-6—Conveyor systems are discussed in 4-p. bulletin. Eighteen conveyors are pictured and described to point out new advances

TEXTILE WORLD . . . Calendar

February

AATT, annual meeting, Hotel Commodore, New York, N. Y., Feb. 8

March

AATT, monthly meeting, Della Robbia Room, Hotel Manger-Vanderbilt, New York, N. Y., March 1

ASME, Textile Engineering Conference, Clemson College, Clemson, S. C., March 16 & 17

Textile Research Institute, annual meeting, Hotel Commodore, New York, N. Y., March 16 & 17

Textile Quality Control Association, spring meeting, Hotel Charlotte, Charlotte, N. C., March 23 & 24

American Cotton Manufacturers Institute, annual meeting, Fontainebleau Hotel, Miami Beach, Fla., March 23 to 25

April

Alabama Textile Manufacturers Association, 60th-Anniversary Convention, Buena Vista Hotel, Biloxi, Miss., April 12 to 14

Narrow Fabrics Institute, Inc., spring meeting, The Tides Inn, Irvington, Va., April 16 to 18

Technical Advisory Committee and Board of Trustees, spring meeting, Institute of Textile Technology, Charlottesville, Va., April 18 & 19

Georgia Textile Operating Executives, spring meeting, Hightower Building, Georgia Institute of Technology, Atlanta, Ga., April 23

Underwear Institute, annual meeting, Hotel Dennis, Atlantic City, N. J., April 24 & 25

45th Knitting Arts Exhibition, Convention Hall, Atlantic City, N. J., April 24 to 28

Georgia Textile Manufacturers Associations, Inc., annual meeting, Hollywood Beach Hotel, Hollywood, Fla., April 26 to 29

May

Alabama Textile Operating Executives, spring meeting, Thach Auditorium, Auburn, Ala., May 6

Material Handling Institute, Eastern States Show, Philadelphia Trade & Convention Center, Philadelphia, Pa., May 9 to 11

Joint Cotton Marketing Conference—Cotton Research Clinic, sponsored by the National Cotton Council, Peabody Hotel, Memphis, Tenn., May 16 & 17

in material-handling cost reduction. Covers storage, transportation and control. Rapids-Standard Co., Inc.

L-7—Overhead trolley conveyor is the subject of Form 2365. This 6-p. brochure shows a typical overhead-track layout. Pictured are its standard operating components and the conveyor in action. Rapistan-Keystone, Inc.

L-8—Lift truck allows faster, palletless handling. Circular 90-131 lists specifications and includes brief discussion of how the truck operates. Illustrated with two photographs. Lewis-Shepard Products, Inc.

L-9—Pneumatic conveyors are discussed in 8-p. booklet. Includes illustrations of major components, diagramatical sketches, and installation photographs with specific application and construction data. Young Machinery Co.

L-10—Exhaust purifier has many applications. This is shown in a 4-p. circular featuring 11 problem-solution case histories. Photographs show the purifiers on various gas-powered trucks used for in-plant handling. Oxy-Catalyst, Inc.

L-11—Strapping machines are detailed in this bulletin. Included are dimensions, specification chart, pictures of models in operation, and illustrations of accessories available for the machine. Signode Steel Strapping Co.

L-12—Hand trucks are thoroughly illustrated and described in this 16-p. catalog. Specification data is included along with a selection chart for easy ordering. Fits loose-leaf 8½ x 11 folder. Hamilton Caster & Mfg. Co.

ELECTRICAL

L-13—Control panels are explained in this 8-p. handbook. Typical applications are pictured and parts are illustrated separately. Folder punched for loose-leaf book is a handy reference guide. General Electric Co.

L-14—Circuit breakers are extensively outlined in this 10-p. folder, 4300-1A. Tables, graphs, and diagrams, guide specification and selection. Fully explained and illustrated in color. I-T-E Circuit Breaker Co.

L-15—Amplifiers are discussed in this 16-p., color-illustrated catalog. Includes: diagrams, photographs of components, application data, and specification charts for available models. Siegler Corp.

CHEMICALS AND SUPPLIES

L-16—Coagulants applied for effective water treatment is the subject of this 8-p. booklet. Practical plant applications and solutions for numerous problems are explained in this illustrated bulletin, A-1. Nalco Chemical Co.

L-17—Aliphatic amines—what they are and what they will do—is the topic of this 23-p. handbook. Types, reactions, and applications of amines are detailed by chart and are fully described. Armour Industrial Chemical Co.

L-18—Plastic steel is a 10-p. brochure comes with many illustrations, graphs, and data tables. Physical properties are conveniently listed, as well as a fully detailed section on how to make in-plant repairs. Devcon Corp.

L-19—Acetylene chemicals is the subject of this ready-reference data sheet. Products are listed in chart form, which gives their description, properties, and uses. Antara Chemicals Div., General Aniline & Film Corp.

L-20—Vat-dyeing techniques for cellulosic fibers are related in this comprehensive 120-p. manual. Includes formulations plus dye-property tables and vat-dye index for 70 different vat dyes. General Dyestuffs Co.

ENGINEERING

L-21—Level switch is illustrated in a 2-p. sheet that is punched for a three-hole binder. Applications are described and wiring diagrams are detailed for alarm installations. Included is a list of advantages. Yarnall-Waring Co.

. . . *Turn the page*

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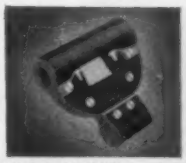

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CIRCLE 155 ON READER SERVICE CARD 155

NEW LITERATURE

. . . *Begins on page* 154

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

L-22—Steam strainer is detailed in a 4-p. folder. Charts list each model and its specifications. Also included is a line of liquid strainers with all information listed in three charts. Cut-away illustrations are shown. OPW-Jordan Corp.

L-23—Pneumatic spring and diaphragm actuators are shown in a 4-p. circular. Construction features are listed. Diagrams show special mounting procedures and cut-away view. Chart lists specific operating characteristics. Conflow Corp.

L-24—Electric Disc Brakes, in 8-p. catalog, gives types available. Each type is shown by photo and engineering drawings. Specifications are listed in chart form. Formulas listed aid in brake selection. Stearns Electric Corp.

L-25—Explosive valves are shown in a leaflet punched for a three-hole binder. In four pages, features and specifications are listed. Illustrations show different types available and chart gives valve dimensions. Conax Corp.

L-26—Two-directional drive is described in a 22-p. manual. Principles of operation are illustrated and described. Typical uses are shown, with engineering data are listed in numerous charts. Installation data sheet included. Formsprag Co.

L-27—Flat belt pulleys illustrated in bulletin punched for loose-leaf folder. Two charts list dimensions for all available types. Illustrations show standard and reverse mountings. List covers bushings. T. B. Wood's Sons Co.

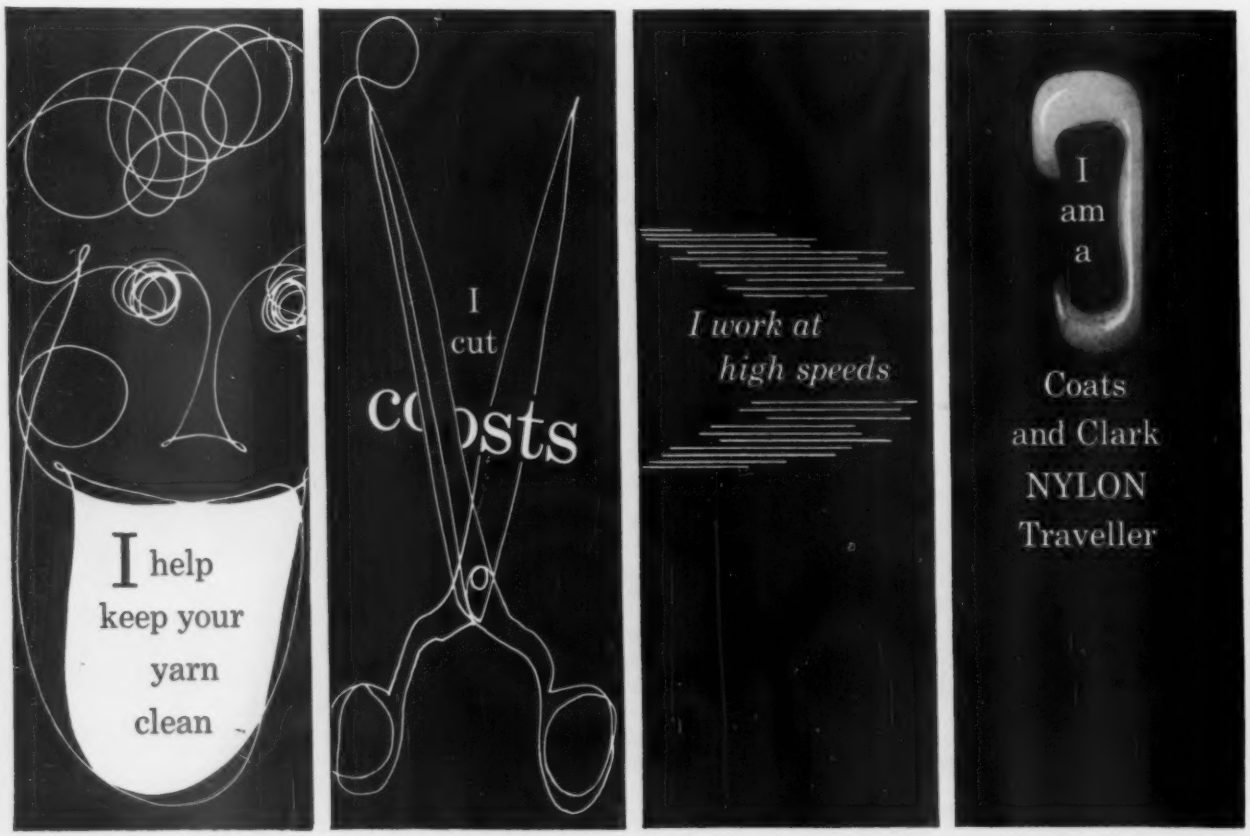
L-28 — Pushbutton switches described in 2-p. price sheet. Applications and features are discussed. Engineering drawing relates details of switch construction. Photo shows full-size unit. Minneapolis-Honeywell Regulator Co.

INSTRUMENTS AND TESTERS

L-29—Differential pressure transmitter listed in 4-p. data sheet. Special features and specifications enumerated. Photos show workings of the unit. Ordering information for specific uses listed. Minneapolis-Honeywell Regulator Co.

L-30—Steam-temperature control details principle for desuperheater water control in a 4-p. bulletin. Diagrams show layouts for 2-, 3-, and 4-element control units. Graphs list control temperature at 65% and 40% loads. Bailey Meter Co.

L-31—Laboratory recorder with two-channel input is described in a 2-p. specification sheet. Operating principle, design principle, and applications are listed in detail. Price



quoted on literature. Yellow Springs Instrument Co., Inc.

L-32—Meters for testing pH are discussed in a 2-p. bulletin. Photo shows test setup. Operating and accuracy information is detailed. Also included are applications and a list of specifications. Beckman Intruments, Inc.

L-33—Inspection lights, of special designs, are catalogued in a 4-p. bulletin. Photographs indicate the style of each basic model. Charts list specifications and photos of miniature replacement lamps. Welch Allyn, Inc.

GENERAL

L-34—Sliding-gate valve described in 8-p. data sheet. Included are cutaway diagrams and operating details. Also listed is a line of accessories and optional equipment. Numerous charts show capacities. OPW-Jordan Corp.

L-35—Chemically resistant coatings for floors and linings are described in 8-p., illustrated Bulletin 604. Chart shows how to use these special coatings. The booklet is supplemented with pictures. Ralph V. Rulon, Inc.

L-36—Checklist, with recommendations on how to select a custodial supervisor, is now available. The checklist gives methods of recruiting supervisors, including standard types of personnel tests. Puritan Chemical Co.

L-37—Procedures for preventing and removing rust are described in 2-p. Service Bulletin No. 16B. Eight different common industrial problems are discussed, and corrective procedures are outlined. Oakite Products, Inc.

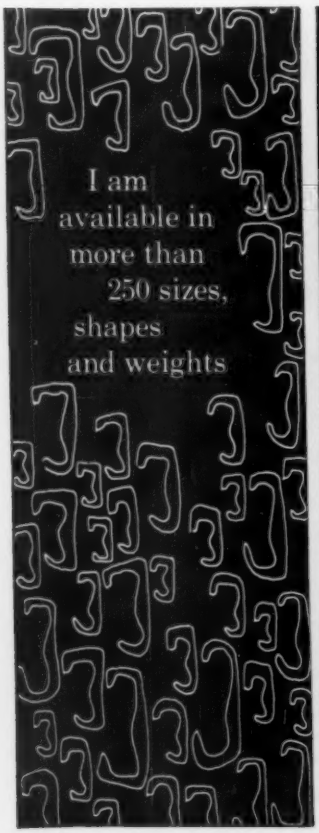
L-38—First-aid kits and pharmaceutical supplies for industrial, institutional, or professional use are described in letter-size catalog. Contains 28 pages of illustrations and product descriptions. Price list is included. Otis Clapp & Son.

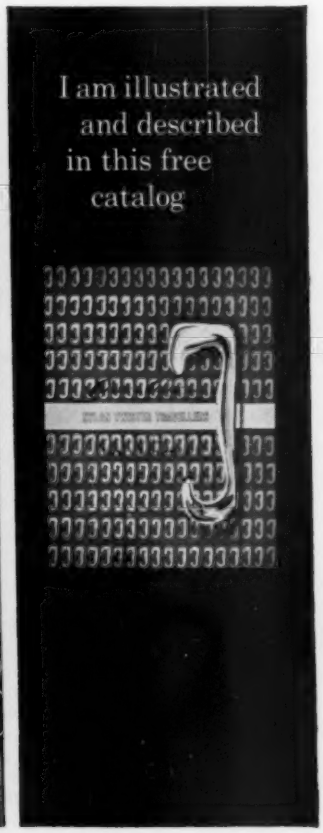
L-39—Analog computer and its application are described in 9-p. report. The booklet gives mathematical derivations and equations, diagrams interconnections, and describes plant installation and operation. Computer Systems, Inc.

L-40—Liquid synthetic cleaner, with low-foaming properties, is discussed in 2-p. sheet. What it is, what it does, and how it works are described in detail. Chart shows specifications in detail. Multi-Clean Products Inc.

L-41—How to Measure Time with Tape, an 11-p. guide, tells users of magnetic dictators how to get the most out of the machines. Sections include preparing material, composing, dictating effectively, etc. DeJur-Amsco Corp.

L-42—Air conditioning from central station is called a "package" system in a 69-p. bulletin. All components for any selected system are listed for easy reference. Pictures, performance charts, and specs. American Air Filter Co., Inc.





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TEXTILE WORLD . . .

News About Suppliers

AIR REDUCTION CO., INC., New York, N. Y.—Has consolidated its Air Reduction Chemical Co., Colton Chemical Co., and National Carbide Co. into a new division, Air Reduction Chemical & Carbide Co. . . . **ALLIED CHEMICAL CORP.,** New York, N. Y.—Has named N. M. Draper vice president of its National Aniline Div. He will be responsible for the sale of organic chemicals, dyestuffs, and pigments. . . . **AMERICAN ENKA CORP.,** Enka, N. C.—Has named Donald Campbell manager of the Providence, R. I., district sales office. Mr. Campbell succeeds J. C. Scott who is retiring. . . . **AMERICAN VISCOSE CORP.,** Philadelphia, Pa.—Has promoted N. A. Cocke, Jr., to manager of sales service for its Fibers Div. His headquarters will be in Philadelphia. The company has also named Magnolia Paper Co., Houston, Tex., distributor for its Avistrap rayon strapping.

DONALD E. THAL (left) has been named general manager of the new International Div. of Link-Belt Co., with headquarters in Chicago, Ill. JAMES A. MAROHN (center) has joined Acme Steel Co., Chicago, Ill. as vice president. S. J. SPITZ, JR., (right) has been named president of the Newport Industries Div. of Heyden Newport Chemical Corp., New York, N. Y.

ATELIERS HOUGET, Verviers, Belgium—Has named Ernest L. Frankl Associates, Inc., New York, N. Y., its exclusive sales agent in the United States. . . . **ATLANTIC RAYON CORP.,** New York, N. Y.—Has changed its name to Atlantic Yarn Corp. . . . **LOUIS P. BATSON CO.,** Greenville, S. C.—Has been appointed southern sales agent for Ernest L. Frankl Associates, Inc., New York, N. Y. . . . **BECCO CHEMICAL DIV., FOOD MACHINERY & CHEMICAL CORP.,** New York, N. Y.—Has transferred E. M. McMahon from the Philadelphia area to the northern New Jersey and eastern New York area. S. L. Cassedy succeeds Mr. McMahon in the Philadelphia area. . . . **BEMIS BROTHERS BAG CO.,** St. Louis, Mo.—Has named G. W. Finlay manager of the company's Wichita, Kan., bag plant and sales division. U. A. Tull succeeds Mr. Finlay as supervisor for multiwall-bag sales with headquarters in St. Louis.

BRANCH MOTOR EXPRESS CO., Brooklyn, N. Y.—Has named F. A. Johnson, Jr., sales manager. . . . **CANADIAN CELANESE LTD.,** Montreal, Que.—Is doubling its facilities at Drummondville to produce 2-million pounds of polypropylene a year. . . . **CARBIC-HOECHST CORP.,** Mountainside, N. J.—Has named W. H. Jones assistant southern manager with headquarters in Charlotte, N. C. . . . **CHEMSTRAND CORP.,** Decatur, Ala.—Is now occupying its new technical center in Decatur. The center will be permanent headquarters for the company's Engineering & Development Dept. . . . **CONTAINER CORP. OF AMERICA.,** Chicago, Ill.—Has promoted R. B. Kirkpatrick to general sales manager in the eastern area for its shipping-container division. Mr. Kirkpatrick's headquarters will be in New York. M. M. Dalton succeeds Mr. Kirkpatrick as general manager of the Philadelphia, Pa., container plant.

CONTINENTAL GIN CO., Birmingham, Ala.—Has announced that R. E. Weinmeister has retired as district sales manager of the eastern district and E. H. Shackelford has retired as special representative. . . . **CROMPTON & KNOWLES**

CORP., Worcester, Mass.—Has announced that its subsidiary, Crompton & Knowles of Canada Ltd., Montreal, Que., has named A. F. Ballantyne director of Crompton & Knowles International and manager of its office in Zurich, Switzerland. W. G. Hjerpe succeeds Mr. Ballantyne as manager and secretary of Crompton & Knowles of Canada Ltd. and secretary of Crompton & Knowles International Ltd. The parent company has also appointed J. D. Crosier divisional sales representative to cover mills in southern and western Massachusetts, northern Rhode Island and Connecticut, and New York. J. J. Henry will cover mills in northern and eastern Massachusetts, New Hampshire, and Vermont.

GEORGE MOSELY (left) has been named vice president in charge of marketing for Celanese Corp. of America, New York, N. Y. WILLIAM E. NEWELL (center) has been named manager of product planning at Whitin Machine Works, Whitinsville, Mass. EDWARD D. CARMAN (right) has been named general manager, Louis P. Batson Co., Greenville, S. C.

DIXON CORP., Bristol, R. I.—Has named Q. Stanley Halliday, Jr., Spartanburg, S. C., to cover the South Carolina area as a sales engineer. Carroll Wood has been named a field service engineer for that state. . . . **DOW CORNING CORP.,** Midland, Mich.—Has opened its new laboratories and textile-chemical plant in Greensboro, N. C. . . . **E. I. DU PONT DE NEMOURS & CO., INC.,** Wilmington, Del.—Has transferred its Dyes and Chemicals Div. New York City sales office, laboratory, and warehouse to Clifton, N. J. . . . **DURANT MFG. CO.,** Milwaukee, Wis.—Is building an addition to its Instrument Div. Plant in Watertown, Wis. . . . **FOSTER MACHINE CO.,** Westfield, Mass.—Has named H. P. Rilling, a sales engineer with headquarters in Westfield. . . . **FLETCHER INDUSTRIES, INC.,** Cheltenham, Pa.—Has renovated its plant in Statesville, N. C., and will manufacture narrow-fabric looms, twisters, and winders.

FOXBORO CO., Foxboro, Mass.—Has created a marketing division that will serve its associated companies in England, Canada, Holland, and Japan, as well as its United States market. . . . **GASTON COUNTY DYEING MACHINE CO.,** Stanley, N. C.—Will complete its new fabricating-plant addition early in 1961. . . . **GENERAL ANILINE & FILM CORP.,** New York, N. Y.—Has named F. J. Prescott manager of market development for the research and commercial-development department of the chemical group. . . . **HAYSSEN MFG. CO.,** Sheboygan, Wis.—Has named J. C. Johnston assistant to the president. R. C. James has been named vice-president and will be in charge of all company operations, and F. E. Pringle, Jr., has been named general sales manager for domestic and international sales. . . . **HOLYOKE MACHINE CO.,** Holyoke, Mass.—Has named Thomas E. Clark, Jr., in charge of sales for the territory serviced by the late George O. Trudeau. . . . **INDUSTRIAL RAYON CORP.,** Cleveland, Ohio—Has announced that Hayden B. Kline has resigned as chairman of the board of directors. He will remain as a director. Dr. Gilman S. Hooper has resigned as vice president and has joined Hercules Powder Co. The company has also announced that operations in its nylon plant in Covington, Va., have ended, and operations at its rayon plant there will end early this year.

JEFFERSON CHEMICAL CO., INC., Houston, Tex.—Has named N. L. Case manager of market research. P. V. Harper has joined the Austin laboratories as technical service representative in the field services section . . . **JOHNS-MANVILLE,** New York, N. Y.—Has named R. G. Cox eastern regional sales manager of fiber-glass textile products. His headquarters are in Atlanta, Ga. . . . **KOPPERS CO., INC.,** Pittsburgh, Pa.—Has named H. C. Lavely manager of plastics applications. He succeeds W. J. Fitzgerald who has been promoted to national

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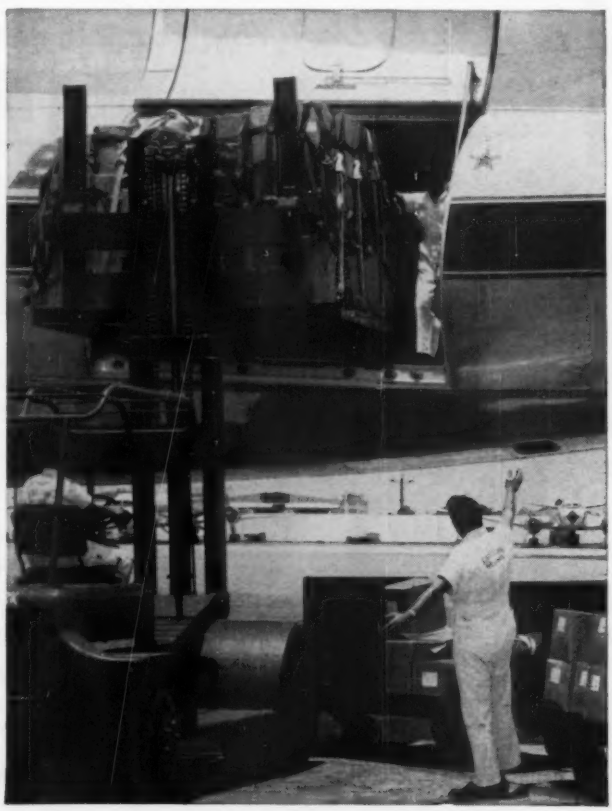

CIRCLE 159 ON READER SERVICE CARD

account manager. . . . **MEAD CORP.,** Dayton, Ohio—Is expanding its Atlanta, Ga., plant of the Packaging Div. . . . **MINNEAPOLIS-HONEYWELL REGULATOR CO.,** Minneapolis, Minn.—Has named J. O. Paull sales manager of its Industrial Products Group. J. F. Smith succeeds Mr. Paull as industrial sales manager of the Pacific region. R. E. Harris succeeds Mr. Smith as Southwest regional industrial sales manager with headquarters in Dallas, Tex.

NATIONAL STARCH & CHEMICAL CORP., New York, N. Y.—And Jordan Chemical Works Pty. Ltd., Sydney, Australia, have formed a new company called Jordan-National Co. Pty. Ltd., which will manufacture and sell vinyl polymers and adhesives. The company has also announced that its polyvinylidene chloride resin plant at Meredosia, Ill., is now on stream. . . . **NATIONAL VULCANIZED FIBRE CO.,** Philadelphia, Pa.—Has acquired Fisher Mfg. Co., Inc., Hartwell, Ga. . . . **OAKITE PRODUCTS, INC.,** New York, N. Y.—Has named K. C. Tucker assistant sales manager. . . . **O-M SPINNING MACHINE MFG. CO. LTD.,** Osaka, Japan—Has merged with Osaka Machine Mfg. Co. Ltd., and has changed its name to O-M Ltd. . . . **PARKER-HANNIFIN CORP.,** Cleveland, Ohio—Has named Livingston & Haven, Inc., Charleston, S. C., distributor for Hydra-ride accumulators.

PENNSALT CHEMICALS CORP., Philadelphia, Pa.—Has named Dawes Walter manager of advertising and public relations. . . . **PERMUTIT CO.,** New York, N. Y.—Has named H. I. Edwards vice president general manager of Permutit Water Conditioning, Inc. . . . **PUTNAM CHEMICAL CORP.,** Beacon, N. Y.—Has named Tanners Dye & Chemical Corp., Peabody, Mass., representative in New England. The company has also named Paul Lindley sales representative. . . . **RADIO CORP. OF AMERICA,** New York, N. Y.—Has opened a sales office in Syracuse, N. Y., for the Electronic Data Processing Div. . . . **SKF INDUSTRIES,** Philadelphia, Pa.—Has acquired Nice Ball Bearing Co., of Philadelphia.

ROBERTS CO., Sanford, N. C., has broken ground for this new plant and office building in Sanford. The company plans to complete the first 105,000 square feet of the total 360,000-sq.-ft. building by late spring.

. . . **SACO-LOWELL SHOPS,** Lowell, Mass.—Has announced that Maremont Automotive Products, Inc., Chicago, will retain its majority stock ownership. . . . **SINGER MFG. CO.,** New York, N. Y.—Has named E. R. Zeek vice president of Diehl Mfg. Co., a subsidiary. . . . **SOLUOL CHEMICAL CO., INC.,** Natick, R. I.—Has named J. J. O'Neil sales manager.

SONOCO PRODUCTS CO., Hartsville, S. C.—Has named J. A. Regan, Jr., public relations manager. He will continue as advertising manager. . . . **SOUTHERN MACHINE CO.,** Chattanooga, Tenn.—Has been sold to R. L. Green, J. A. Cobble, Sr., J. Cobble, and J. A. Coble, Jr. . . . **SOUTHERN STATES EQUIPMENT CORP.,** Hampton, Ga.—Has named Lamont Brooks a salesman in Georgia. . . . **SQUARE D CO.,** Park Ridge, Ill.—Has bought a plant in Asheville, N. C. . . . **VALCHEM,** New York, N. Y.—Is planning to enter the polyester resin industry this year. It is building a plant in Langley, S. C.

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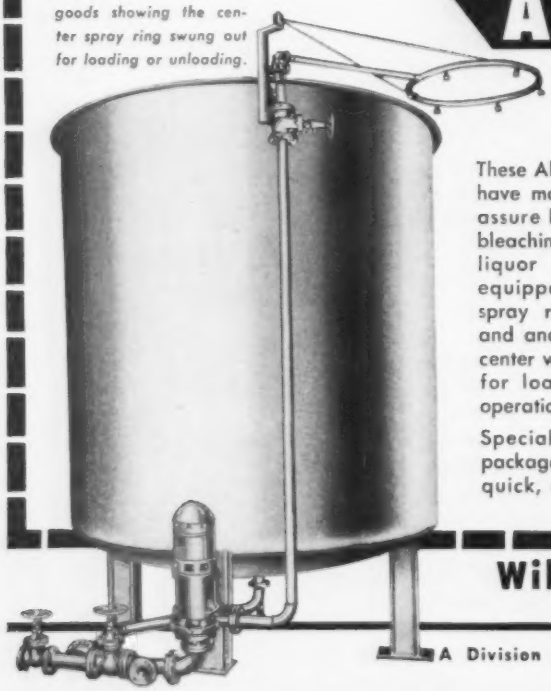
The Allen Kier for knit goods showing the center spray ring swung out for loading or unloading.



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TEXTILE WORLD . . News About Men

D. D. QUILLIAN has been elected president of Chicopee Mfg. Corp., New Brunswick, N. J. He is general manager of manufacturing for the company's Lumite Div.

William B. Burke has been named superintendent for Cone Mills Corp., Greensboro, N. C.

Arthur B. Culbertson, Jr., has been named sales manager for the New York metropolitan area of Burlington Yarn Co., Greensboro, N. C.

Henry J. Dekker has recently been elected a vice president of Deering Milliken & Co., New York, N. Y.

Erwin Eyerly has retired as head of quality control for Cranston Print Works Co., Cranston, R. I.

Sidney Flood has been named director of the yarn division of Glen Raven Mills Inc., Glen Raven, N. C.

Joseph A. Golden has been named to the newly created post of merchandising coordinator for five apparel fabric divisions of Burlington Industries, Inc., Greensboro, N. C. They are Pacific Mills Worsted Co., Raeford Worsted Co., Peerless Woolen Mills, Burlington Woolens Co., and Pacific Mills' Women's Wear Dept.

James D. Grealish has resigned as vice president of Triangle Hosiery Co., High Point, N. C., and has joined Andover Knitting Mills, New Ipswich, N. H., as president.

JOHN WALLNER, JR., has been appointed vice president of Magnet Mills, Clinton, Tenn.

EVERETT C. REED has been appointed executive vice president in charge of manufacturing of Albany Felt Co., Albany, N. Y.

Robert E. Gregg has been elected vice president of The Kendall Co., Boston, Mass. Mr. Gregg is director of sales for the company at the firm's Boston executive offices.

Freeman R. Harris, vice president of Standard-Coosa-Thatcher Co., Chattanooga, Tenn., has been elected president of the Durene Association of America.

Albert S. Hartsell has been named manager of the industrial plant of the Cotton Goods Div., J. P. Stevens & Co., Inc., New York, N. Y.

Stewart Jenkins, manager of the thread department of Linen Thread Co., Inc., Blue Mountain, Ala., has been elected a director of the Thread Institute, Inc.

H. Ralls Jennings has been appointed plant engineer for Fulton Cotton Mills, Atlanta, Ga.

Thomas C. Jolly has been appointed manager of Gaff-

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TAUNTON, MASS. Stanley W. Matthews Box 707 — Tel. VA 4-4421

A CHALLENGE AND AN OPPORTUNITY
for
SUPERINTENDENTS
STAFF ENGINEERS
MANAGERS
OVERSEAS ASSIGNMENTS
IN TEXTILE CONSULTING

Our client, a leading, well established and expanding U. S. textile consulting organization operating worldwide offers **permanent** positions that enable competent textile men to progress as fast and as far as their ability permits.

Your work history must include job progress, technical know-how in cotton, synthetics or woolens and worsted, and practical mill experience in one of the following:—

Spinning and Weaving
Knitting
Dyeing and Finishing
Industrial Engineering
(With Production Experience)

Essential personal qualities: youth, drive, forcefulness, organizational and analytical abilities.

These positions—now and in the future—offer a chance to use your full ability, to see your own personal contributions, and to grow accordingly in position and earnings.

Write in confidence, giving personal, educational and business history to:

ASCHNER ASSOCIATES
PUBLIC RELATIONS
10 East 44th Street
New York 17, N. Y.

CIRCLE 257 ON READER SERVICE CARD

READERS . . .

Do you need more information on a product or service advertised?

USE READER-SERVICE CARD FOR PROMPT REPLY.

News About Men

SOL BENNETT LURIA has resigned as vice president of Princeton Mills, Inc., Watertown, Conn., after 13 years' service.

ALBERT C. GRAY has retired from his post as head of southern spinning mills for Coats & Clark, Inc., New York, N. Y.

ney Mfg. Co., Gaffney, S. C., division of Deering, Milliken, Inc., New York, N. Y.

William M. Kuzmiak has been named vice president of Cone Mills, Inc., New York, N. Y.

Joseph L. Lanier, president of West Point Mfg. Co., West Point, Ga., has been named chairman of the American Cotton Manufacturers Institute committee on economic policy.

Rudolph Looper has been named superintendent in charge of finishing all fiber-glass fabrics for Shelby Mills, Inc., Shelby, N. C.

Kenneth M. Lowry, director and general manager of Deering Milliken Service Corp., has been transferred to a permanent consulting position with the organization.

John S. McBride has joined the fiber-glass department of J. P. Stevens & Co., Inc., New York, N. Y., as an assistant to Richard C. Horton, technical director.

John L. McConchie, director of sales for the textile division, has been elected a vice president of The Kendall Co., Boston, Mass.

Andrew J. McDermott has been elected executive vice president and director of Artloom Carpet Co. division of Trans-United Industries, Inc., Philadelphia, Pa.

Douglas H. McElhinney has been appointed director of research and development for Cabin Crafts, Inc., Dalton, Ga.

Joseph A. Mix, former purchasing manager of The Kendall Co.'s Seneca, S. C., plant, has been appointed purchasing manager of the textile division of The Kendall Co., Boston, Mass.

C. R. Murphy has been elected a vice president of The Kendall Co., Boston, Mass. He is manager of the international division with headquarters in Chicago, Ill.

Mrs. Elsie M. Murphy has been elected president of Old Bennington Weavers, Inc., Old Bennington, Vt.

George A. Ott has been elected president of Woolens and Worsteds of America.

Milo A. Papp has been appointed assistant merchandiser in the flannelette division, Cone Mills, Inc., Greensboro, N. C.

Morris Pounds has been named technical superintendent for Gerrish-Milliken Mills, Pendleton, S. C.

Dr. Linton G. Ray has joined Deering Milliken, Inc., New York, N. Y., as a vice president.

Robert D. Sellers, Jr. has been named a vice president of Southern Bleachery & Print Works, a division of Burlington Industries, Inc., Greensboro, N. C.

Walter Sharoff has been

. . . *Begin on page* 148

MARTIN KAMP has acquired control of New York Knitting Mills, Inc., New York, N. Y. The firm makes men's sweaters.

RAY H. BOGERT has retired as sales manager of Troy Blanket Mills, Troy, N. H., after 42 years' service with the company.

elected assistant vice president of M. Lowenstein & Sons, Inc., and vice president of the Yankee Export & Trading Corp., and the Olympic Textiles International, Inc.

Alan B. Sibley has been named president of the fine-goods manufacturing division of Deering Milliken, Inc., New York, N. Y.

Frank C. Tucker has been named to head a new quality-control, research, and development department at the Charlotte headquarters of Hudson Hosiery Co., Shelby, N. C.

Harold E. Wadely has resigned as chairman of the board and a director of Firth Carpet Co., Firthville, N. Y.

H. Stewart Warner has been elected president of the Warner Woven Label Co., Inc., Paterson, N. J.

Fred W. Wunderli has been named manager of man-made-fiber fabrics for the Textile Div., The Kendall Co., Boston, Mass.

OBITUARIES

Harry L. Fine, 70, president of the former Peerless Mills, Pawtucket, R. I.

Roger Gant, 73, chairman of the board and treasurer, Glen Raven Cotton Mills, Glen Raven, N. C.

Russell Hampton, 61, former vice president, Cotswold Fibres, Inc., Columbus, Ga.

Henry Kahnhauser, 66, secretary and treasurer, W. S. Libbey & Co., New York, N. Y.

Jack H. Mayes, 80, chairman of the board, Fitzgerald Mills Corp., Fitzgerald, Ga.

Issac B. Merriman, 86, former general manager, Manville-Jenckes Co., at Warren, R. I.

Paul A. Raich, 50, president, Paraco Woolen Co., Passaic, N. J.

Charles C. Smith, 70, retired plant manager, Bemis Bag Co., St. Louis, Mo.

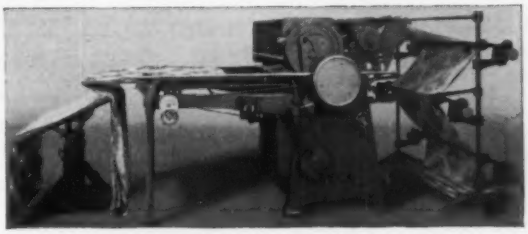
Russell C. Smith, 71, vice president and director, Cranston Print Works, Cranston, R. I.

Charles D. Whiteney, 78, former operator of Whitney Worsted Mills and Clover Worsted Mills in Frankiln, Mass., and the Premier Worsted Mills in Woonsocket, R. I., Pascoag, R. I., and Raleigh, N. C. He retired in 1952.

Production doubled... waste eliminated

by the

BECK ROLL SHEET CUTTER



Learn how this entirely new method of cutting can work for you. Write telling us what you cut.

charles **BECK MACHINE** corporation

SHEET CUTTERS
SLITTERS
SHEETER-PRINTER
CAN IMPRINTER
BOX LIDDER
TEAR-STRIPPER

50 church road, king of prussia, pennsylvania

CIRCLE 258 ON READER SERVICE CARD

CHAS. T. MAIN, INC.
Engineers

TEXTILE MILLS AND OTHER INDUSTRIAL PLANTS

BOSTON, MASSACHUSETTS
CHARLOTTE, NORTH CAROLINA

ELECTRICAL, STEAM, DIESEL AND HYDRAULIC ENGINEERING
MACHINERY REORGANIZATION
WATER SUPPLY
INVESTIGATIONS
REPORTS AND APPRAISALS
CONSTRUCTION SUPERVISION

CIRCLE 259 ON READER SERVICE CARD

NASH

Automatic Machinery For Cleaning And Refinishing QUILLS And BOBBINS

NASH *J. M.* **NASH** *Company, Inc.*

131 Jackson St., Oshkosh, Wisc.

"Special Finishing Machines Since 1890"

To get items you want offered in the advertisements in this issue, just circle numbers on Reader-Service Card next to the back cover. If all bulletins listed under one number are not required, please write on card the name of bulletin desired.

Advertisers' Literature

A350—Pneumatic Roll Picker. Literature available free for the asking. M-B Products.

A351—Rotary Pressure Joints. Send for Catalog No. J-2002, which describes applications. Johnson Corp.

A352—Stainless-Steel Kiers. Write for circulars giving information on complete line of Kiers. William Allen Son's Co.

A353—Anti-Wrinkle Slat Expander. Data sheet is yours for the asking. Kay Machine Co., Inc.

A354—Versatile Knitting Machine. Write for booklet on important advance in rib and interlock production. Supreme Knitting Machine Co., Inc.

A355—Flexible Couplings. Write for Bulletin 5103, which describes uses. T. B. Wood's Sons Co.

A356—Over-head Rail. Write for booklet No. 2008, which describes automatic dispatch system. Cleveland Tramrail Div., Cleveland Crane & Eng'g. Co.

A357—Counters. Write for Catalog 45 for more information. Durant Mfg., Co.

A358—Stock-metering unit. Write for complete details of this equipment. Fiber Controls Corp.

A359—Creel Arms. Write for catalog that describes this equipment. McBride.

A360—Silent Chain. Write for book 2425, which describes full range and sizes. Link-Belt Co.

A361—Free-Wheeling Expanders. Write for Technical Bulletin TEB-58, which describes principles, applications, and specifications. Mount Hope Machinery Co.

A362—Winders. Write for descriptive circular that describes winders for every purpose. Foster Machine Co.

A363—Hanover International Fair. Write for fact-filled brochure for complete information regarding fair. German American Chamber of Commerce.

A364—Slasher Rolls. Case histories are detailed in S-W Sealskin brochure. Stowe-Woodward, Inc.

A365 — Factoring. Information booklet is available on request. Walter E. Heller & Co.

A366—Nylon Traveler. Catalog lists types available on request. Coats & Clark, Inc.

A367—Textile Testers. Write for complete facts on types available. Scott Testers, Inc.

A368—Salt. Write for information about various grades of salt. Morton Salt Co., Industrial Div.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT • BUSINESS EQUIPMENT — USED OR RESALE

OPPORTUNITIES

DISPLAYED RATE

EQUIPMENT & BUSINESS OPPORTUNITY

Advertising $14.25 per inch

EMPLOYMENT OPPORTUNITIES—$33.80 per inch, subject to Agency Commission.

An advertising inch is measured 7/8" vertically on one column, 3 columns—30 inches—to a page.

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(Not available for equipment advertising)

$1.50 a line, minimum 3 lines.

POSITIONS WANTED undisplayed rate is one-half of above rate, payable in advance.

Box Numbers—Count as one line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication,
Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 11: 255 California St.

POSITIONS VACANT

Superintendent for Warpknitting and Simplex-plant required immediately. Only really competent people in all phases of Warpknitting with organizational ability need apply. Please give all details and curriculum in 1st letter. Salary $10,000 per annum. Tricotex Company Limited, Sherbrooke P.Q. Canada.

Well known silk and synthetic weaving mill is interested in an experienced person to be in charge of all preparatory work, especially slashing of all important fibers. P-5901, Textile World.

SELLING OPPORTUNITIES AVAILABLE

Distributors, sideline salesmen to call on textile mills for new imported, precision, heavy duty compressorless, lightweight electric spray gun. 200 pound pressure—ideal for removing oil spots, paint, etc. Sold successfully in 35 countries. Tremendous demands. Exclusive opportunity. Build your own business. Big profits. Write in detail giving full information about yourself, territory and type of outlets you cover. Klepp Brothers, P.O. Box 951, Dept. T, White Plains, New York.

Wanted: Textile printing technical service representative, operating from New York metropolitan headquarters. Thorough knowledge of dyestuffs and their application to textile printing necessary. Company is already well established in this field. Please send detailed resume including salary requirements to RW-5848, Textile World.

POSITIONS WANTED

Textile Superintendent—Thoroughly experienced in preparatory and weaving all fabrics, natural and man made fibers. Know all types C&K and Draper looms. Available for domestic or overseas position. PW-5691, Textile World.

Knitter Mechanic—Tricot Machines—pattern making—20 years experience in Europe, Australia and U. S.—Good reference—Desires challenging position. PW-5827, Textile World.

(*Continued on opposite page*)

EXPORT SALES

Rohm & Haas wishes to hire a technical salesman for sales and development work in various textile markets throughout the world. Prefer college graduate with experience and language facility. Supply full details with salary requirements if interested.

C. S. Betts
Technical Employment
Rohm & Haas Company
1700 Walnut Street
Phila., Pa.

POSITIONS WANTED

Weaving Supt., presently employed, seeking change. Fancy woolen, worsted, blends experience with essential background in human relations, quality, production, cost. PW-5796, Textile World.

Textile Graduate. Solid Theoretical and practical background in: 1.—Woolen and Worsted Carding, Spinning (French and American Systems) and Weaving. 2.—Cotton and Synthetics Carding, Spinning, Weaving and Knitting (Circular, Tricot, Hosiery). Has diploma in each of the above mentioned categories. Desires position as Asst. Supt. or Supt., or also in the Consulting or Service Engineering field. Speaks several languages. Presently employed. Would relocate U.S.A. or overseas. PW-5924, Textile World.

College graduate. Ten years U.S. and foreign supervisory experience in synthetic and cotton yarn manufacturing. Seeking foreign location as Supt., Asst. Supt., or Consultant. Resume upon request. PW-6038, Textile World.

Director of Manufacturing, Styling And Designing. Technical Manager of Integrated Mills or Converting Operations. Bruenn graduate. Age 48. 25 years of creative managerial and styling experience in the U.S.A., and overseas. Creator of new fabrics and blends in woven piece goods. Worsteds, woolens and blends with synthetics, hair and furs for men's and women's wear. Planning, direction and supervision of all manufacturing phases, through spinning, weaving and finishing. Efficiency and cost controls. Raw material and machinery buyer. Development of new industrial projects. Speaks several languages. Seeks adequate, leading position in the U.S.A., or abroad. PW-5802, Textile World.

SELLING OPPORTUNITY WANTED

Established Manufacturers Representative selling Automotive Industry seeks additional textile product for automobile body interiors. RA-4452, Textile World.

DON'T FORGET THE BOX NUMBER

Established manufacturer's representative selling New England and New York woolen, worsted, cotton and synthetic trade, weaving and spinning mills would like one additional line. Warehouse facilities available.

RA-5917, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

WANTED TO BUY

SURPLUS TEXTILE FALLER, COMBER, CARD, GILL PINS together with any drilling equipment to make faller bars or comb circles.

W-5178, TEXTILE WORLD
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CIRCLE 400 ON READER SERVICE CARD

FOR SALE

Ten thousand plastic Loop Pickers for Draper looms. Samples furnished on request. Price 25¢ each or best offer. Reply

FS-5941, Textile World
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

CIRCLE 401 ON READER SERVICE CARD

CHEMICAL TEXTILE FIBERS

APPLICATIONS RESEARCH AND SERVICE

The Applications Research and Service Department of The Chemstrand Corporation, a major producer of chemical textile fibers, is seeking candidates for these attractive assignments at its Decatur, Alabama facilities:

TEXTILE DEVELOPMENT ENGINEER—Assist with coordination of technical and administrative functions of the Applications Research and Service Department including liaison within the Department and with the Corporation's customers. Bachelors degree in scientific or textile field and 10-15 years of textile or related experience with sound knowledge of textile markets required.

GROUP LEADER, COLOR MEASUREMENT AND SPECIFICATION—Supervision and expansion of activities including instrumental color matching, development of instrumental color control, prediction of shade ranges based on historical color preference, and related functions. Degree (preferably Masters) in chemistry, physics, or related field and experience in above activities required.

DYEING EVALUATION CHEMIST—Investigation of kinetics of diffusion in solids; adsorption of surface-active materials by high polymers; zeta potentials of fibers; and other properties of fibers related to absorption of dyes and textile chemicals. Doctorate in physical or physical-organic chemistry required with academic and/or industrial research background in above areas.

TECHNICAL WRITER—Preparation of technical information bulletins and instruction manuals for customers, coordination of printing and distribution of brochures and manuals, and preparation and editing of technical articles and papers for textile trade publications. Bachelors degree or equivalent in chemistry, textile engineering or related field and 3-5 years experience in above functions in the chemical or textile industry required.

CARPET DEVELOPMENT SPECIALIST—Evaluation of Chemstrand's and competitive carpet fibers. Bachelor's degree in textile engineering or chemistry or related field and 10 years carpet development and/or evaluation experience required. Background in development and evaluation of woven and tufted constructions necessary. Experience in evaluation of new or improved fibers and working knowledge of textile yarn spinning processes and statistics desirable.

TEXTILE FIBER EVALUATION ENGINEER—Evaluation of Chemstrand's and competitive fibers and development of end-use applications. Bachelors degree in textile engineering or related field with minimum of 2 years experience in fiber, yarn, and fabric technology and an appreciation of tactile qualities of textiles required. Textile testing, processing, and finishing background required. Experience in chemical fiber processing, statistical design of experiments, and statistical interpretation of data helpful.

Send resume of academic training, employment, and salary history in confidence to:

Manager,
Employment
-Recruitment

BOX ARS-5
THE CHEMSTRAND CORPORATION
DECATUR, ALABAMA

FOR SALE

1—Foster 102 Winder, 100 spindles 9°36' paper cones, overhead cleaner.

1—Whitin Model D Twister, 80 spindles, 7" gauge, 5" ring, 9" traverse.

3—Saco-Lowell FS4 Long Draft 10 x 5 Slubbers, 108 spindles.

INTERSTATE TEXTILE EQUIPMENT CO., INC.

P.O. Box 3371 CHARLOTTE 1, N. C. Edison 3-1894 ● EMPIRE STATE BLDG., New York 1, N. Y. PEnn. 6-0451

CIRCLE 402 ON READER SERVICE CARD

TEXTILE AUXILIARIES INC.

"TOP QUALITY EQUIPMENT AT LOW PRICES"

1—5 Color R.B. & F. Printing Machine, complete with Backrigging, Dry Cans, motor, etc.
1—30' x 72" Butterworth Tenter Frames.
1—40' x 54" Winser & Jerauld Tenter Frame 7# High Speed Chain.
1—72" 2 Roll Simpson Cut-Off Winder.
1—5' & 3—4'x9'x30" Stainless Steel Dye Becks with set of Riggs Lombard pneumatic Squeeze Rolls, 7½" diameter, stainless steel bottom roll and rubber top roll.
300 Braiders from 12 to 72 Carriers.
2—99' x 50" Winser & Jerauld Swing Tenters, #5 Stainless Steel Clips.
1—Butterworth Tenter Frame 70' long x 280" wide, complete with tension bars, take off, Housing 37'x20'x7'8", turbine blowers, produce 300 degree F., and Chromolux setting unit, 213" rods, 450 degrees F., blowers, fans, etc.
4—Stainless Steel Dyetrucks 30"x36"x29" deep with rubber wheels.
Reeves Drives, All Sizes, Opened and Closed. Stainless Steel Tanks, Copper Jacketed Mixing Kettles.

We carry spare Padder & Calender Rolls all sizes, also motors from 1 HP to 100 HP.
These are only a few items: For Detailed List: Write, Wire or Phone:

Dexter 1-9650 Dexter 1-8837 Providence, R. I. 146 West River Street

PROVIDENCE, R. I.

CIRCLE 403 ON READER SERVICE CARD

FOR SALE

Eight Aveco Model D Tricot Machines

all in perfect running condition.

Reply to

FS-5798—Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CIRCLE 404 ON READER SERVICE CARD

$3,000,000 Liquidation:
Chemical Plant at Orange, Texas

Type 316 stainless steel tanks, kettles, heat exchangers, columns, stills, crystallizers, centrifugals, pumps, valves, etc.

WONDERFUL VALUES, SEND FOR LIST

PERRY EQUIPMENT CORP.
1430 N. 6th St. Phila. 22, Pa.

CIRCLE 405 ON READER SERVICE CARD

LIQUIDATING TEXSTYLE CORP.

CLIFTON, N. J.

PRINTING

5—Rice, Barton & Fales-Textile Machinery 8 color Print Machines, 50-60" wide
3000—Engraved Copper Rollers
4—Vat Agers, Stainless Steel & Brass Rollers
1—Stainless Steel Acid Ager, 15' long, 66" rolls
1—Rice, Barton & Fales Mandrel Jack

DYEING

1—Burlington Stainless Steel Beam Dyeing Unit
8—Textile & Werner Stainless Steel Dye Jiggs, 50"-70"
13—Stainless Steel Dye Boxes, 6'-18'
4—Troy Stainless Steel Tumbler Washers

FINISHING

1—V.V. Tenter Finishing Range, 90'; National housing
1—V.V. Palmer Tenter Unit, 40'
1—V.V. 3 roll calendar, 60" motor & drive
1—Verduin Hydraulic Calendar, 58", 3 roll, 40 ton
1—Werner Schreiner Calendar, 50", 50 ton, 1956
2—V.V. Heavy Duty Tenter Frames, 60' x 66"
1—Verduin 3 roll Padder, 50", motor & drive
1—Marlow Stainless Steel 3 compartment Washer
1—Morrison Button Breaker, 60"

OTHER MODERN TEXTILE MACHINERY

36—Whitin F-2 Spinning Frames, 3½ ga., super draft
12—Atwood Re-draw, 68 spindles, 1950
56—Universal #10 Uptwisters, 184 spdls., 2 lb. headless pkge., 1950
3—Sipp-Eastwood Warpers, 1949
3—Abbott Quillers, 1955

130 Draper XD Looms, 54" reed, Diehl & motor, 1947-51

1—Cockner Indigo Dye Range, 1948
4—Venango S.S. Package Dye Units, 1948, 3-500 lbs. each

Republic
TEXTILE EQUIPMENT COMPANY

APPRAISALS • PURCHASE AND SALE TEXTILE MACHINERY • LIQUIDATION OF MILL PROPERTIES

40 Worth Street, New York 13, N.Y. • COrtlandt 7-1590

CIRCLE 406 ON READER SERVICE CARD

FOR SALE
MACHINERY AND EQUIPMENT

SAYLES FINISHING PLANTS, INC., Saylesville, Rhode Island

BLEACHERS DYERS AND FINISHERS

(In Lots to Suit Purchasers)

Brochures Sent on Request

4—Singe Machines, 50"-60"-100" wide
12—Steel Pressure Kiers, 3-4 ton capacity
2—Continuous Rope Bleaching Ranges
1—Continuous Open Width Bleaching Range
3—Tensitrol Stainless Steel Rope Washers
21—Water and Starch Mangles, 2 and 3 rolls
12—Dye Padders, 2 and 3 Rolls each
44—Stainless Steel Dye Jigs, 50"-60"-70" wide
9—Dye Becks, Stainless Steel, 6'-10'-12' wide
1—Aniline Dye Range, Padder, Cans, Ager and Wash Boxes
4—Continuous Dye Ranges, 4-5 and 6 Compartments
5—Mercerizing Ranges, Chain and Chainless type
17—50" Wide Clip Tenters, 24'-50'-80'-90' long, housings
9—Calenders, Silk, Rolling, Embossing, Friction, Schreiner
12—Sets Copper Dry Cans, 50" to 144" Face
1—Set 12 Copper Dry Cans, 60" Dia. x 110" Face, Back Dryer
4—Cloth Dryers, Loop, Roll, Air-Lay, 50"-96" wide
4—Compressive Shrinking Machines, Simplex-Duplex
4—Open Width Soapers, 5-6-7 Compartments
35—Folders, Doublers, Inspectors and Tubing Machines, 40"-60" wide

(PLUS MISCELLANEOUS ITEMS AS USED IN A PLANT OF THIS TYPE)

Offered Exclusively by

GEORGE D. FLYNN, JR.

31 Canal Street Providence 3, R. I.

AGENTS

James E. Fitzgerald
Tel. Saylesville—PAwtucket 5-0800
Tel. Fall River, Mass.—OSborne 8-5616

F. C. Pearce Drummond
Tel. Saylesville—PAwtucket 5-0800
Tel. Providence, R. I.—GAspee 1-1163

CIRCLE 407 ON READER SERVICE CARD

LIQUIDATING
MODERN JIGG & BOX PLANT
of
Modern Central Dyers & Finishers Inc.

101 E. 23rd St., Paterson, N. J.

6 VV 60" Model 720 Dye Jiggs with covers.
1 Verduin 60" 40 ton Hyd. Calender
1 Morrison Heat Setting unit
1 40' x 62" Tenter Frame with Palmer, Quetch and gas fired housing.
2 Verduin 6' enclosed Dye Becks
1 60' x 60" Tenter Frame with National Gas Fired Housing

Representative on Premises

MAR-DAY TEXTILES

52-60 Berkshire Ave., Paterson 2, N. J.
MU 4-5132

CIRCLE 408 ON READER SERVICE CARD

2-JUMBO U.S. TEXTILE DOUBLER TWISTERS-

1–48 sp. and 24 sp.–5 to 7 lb. cap.–9" gauge, 9" trav.

1958 Model #5–7" Ring, Henium Guides–Kiddie Creels.

4-H&B SPINNERS

200 Sp. Ea–4½" Gauge–3¼ Ring, 9¼ Trav. Pneumatic–

1–1955–28 sp. SAABA MACHINE

V.V.–1957 CLIP TENTER FRAME 20 FT.–24" TO 72"
3–ABBOTT AUTOMATIC QUILLERS LATE–60 & 100 SPINDLES
16–1953 FLETCHER TAPE LOOMS
2–S.S. 250 LB PADDLE DYE MACHINES
1–S.S. 150 LB PADDLE DYE MACHINE
1–WHITIN NOV. 200 SP. TWISTER–3" RING
2–HENRICI–ST. STEEL 2 COMP. WASHERS
2–HENRICI–ST. STEEL 3 COMP. WASHERS
2–SIPP EASTWOOD MAG. CONE CREELS

32 DRAPER 44" XD LOOMS

20 Harness Dobby–Center Filing Fork. Weaves up to 46" cloth.

1–3 lb FLETCHER– 18 sp. SAMPLE DOUBLER

10. U. S. REDRAWS . . .

52 SP. EACH–HI SPEED–SPINDLELESS
Hen. Tensions–1 lb. Cap.

GESSNER-HI-TORC NAPPER

80"–Double Acting–1954 Model

20 DYE BECKS

Stainless Steel–Open & Closed From 2 Ft. to 16 Ft. Wide From 32 to 60" Deep

24 REBUILT MODEL 50 CONERS
CALENDERS 1–V.V. 66"–20 TON 1–V.V. 60"–7½ TON

MODEL 44–40 SPINDLE ROTOCONER

19 - W3AC LOOMS, 84" - 1953 MODEL

2x1 BOX 8 HARNESS CAP. MOTORIZED 3 HP/440 VOLTS/60 CYCLE MOTORS.

Wm. Rabinowitz & Sons

TEXTILE MACHINERY, BOBBINS & SUPPLIES

Gordon & Jordan Streets • HEmlock 4-9525 • Allentown, Pa. • Cable: RAB

ONLY PARTIAL LISTING . . . SUBJECT PRIOR SALES . . . SELECTED STOCK OFFERINGS

CIRCLE 409 ON READER SERVICE CARD

WE OWN AND OFFER FOR SALE

5—Saco-Lowell F-5 Slubbers 10x5x8 of 120 Spindles with Adams' Stopmotion, motors, drives and switches.
1—Warner-Swasey Quad Pindrafter, Model 3680, New.
1—S-L Pilot Plant SS 4 Spinning Frame 4" gauge, 48 spindles, 1½" front roll for staples up to 9".
1—Foster 8" traverse Cone Winder, Model 35A, suitable for carpet yarn.
30—Spindles Foster Model 77 Cone Winders, 8" traverse with expanding cone holders.
1—Foster 56C Doubler with 8" traverse, currently equipped to double up to 4 ends.
1—SL Derby Doubler for 40 ends of sliver.
2—Steel Drum Roto-Coner Winders, 20 and 60 Spindles—cones.
1—Foster 102 of 100 Spindles, 3° 30' paper cones.

H. C. SKELTON, INC.
Textile Machinery
Telephone: HAZEL 7-3737
UNION, SOUTH CAROLINA

CIRCLE 410 ON READER SERVICE CARD

BRASS PIN-PLATES All Sizes

PUT YOUR PIN TENTERS IN TIP-TOP CONDITION

SEND US OLD PLATE FOR QUOTATION

Pins in Stainless, Monel, Plain Steel. All Diameters Any Length

SOUTHERN TEXTILE WORKS
P. O. BOX 406 ANDERSON, S. C.

CIRCLE 411 ON READER SERVICE CARD

Spinning Frames—Completely Modernized

Available Now From Stock

65,000 spindles, 3" gauge, Whitin Model F and B
20,000 spindles, 3" gauge, Saco-Lowell (latest head)
15,000 spindles, 3¼" gauge, Whitin Model B
7,000 spindles, 3½" gauge, Whitin Model F and B
5,200 spindles, 3½" gauge, Saco-Lowell (latest head)
6,000 spindles, 3½" gauge, Fales & Jenks (latest head)
3,600 spindles, 4" gauge, Whitin Model B

Completely Modernized with:

Open Type Umbrella Creels
Latch Bobbin Holders
Suction End Collection
Double Apron High Draft System
Individual Drive Pulleys with Ball Bearings
Ball Bearing Tape Tension Pulleys
Ball Bearing Top Drive Spindles
High Speed Rings

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WE OWN AND OFFER FOR SALE

46—Warner-Swasey "Sulzer" Automatic Shuttleless Looms, 80" wide, 30 Looms-Standard 8 harness, 16-Looms Staubli Heads, 25 harness—Age 1950-3

1—Rodney Hunt S.S. 8' Tensitrol Washer—1956
1—Burlington Eng. S.S. Hi-Pressure Beam Dyer, 50-56" wide—1959
1—Continuous Stainless Bleach Range—Age 1954; Wiesner-Rapp Saturator, Becco 1500 yd/hr, "J" Box
1—Morrison Continuous Open Width Dye Range 60"—Age 1948; 2—Williams Units, 3 stainless washers, Pneu. Padder 15 ton, Vacuum Extractor
1—Werner Hydraulic Schreiner Calender, 47" face, 50 ton, 20 HP motor
1—Verduin Hyd. Padder, 2 rolls, 60", 15 ton
1—Morrison Micro-Set Padder, 2 rolls, 60", 8 ton
1—R.H. Stainless Open Width Dye Range
1—R.H. Stainless 2 comp't Crabb, 80" wide
1—Winsor & Jerauld Tenter Frame, 30' long, 72" wide
1—Proctor & Schwartz Loop Dryer, 60' long, 126" revolving sticks, Age 1948
3—Rodney Hunt Stainless Encl. Dye Boxes 16' wide, 47" deep
2—Rodney Hunt Stainless Encl. Dye Boxes, 10' wide, 47" deep
2—Van Doorne Stainless Encl. Dye Boxes 12' wide, 42" deep
1—Van Doorne Stainless Encl. Dye Box 4' wide, 42" deep
1—Van Vlaanderen 3 roll Calender, 60" wide, lever set
3—Werner Stainless Encl. 70" wide, Dye Jiggs
1—Meadows Hyd. Embossing Calender, 72" wide, 25 ton, 1949
12—Stainless Steel Dye Hse Trucks, 60" long
10—Universal #550 Super lofts, 216 spdls., Age 1955
70—C & K Model S6 Looms, 2x1 box, 58"—1951
15—C & K Model S6 Looms, 4x1 box, 56"—1949-50
13—C & K Model S6 Looms, 2x1 box, 56"—1949
26—C & K Model S6 Looms, 4x1 box, 54"—1948
12—C & K Model W3 Convert. Looms, 64"—1940
24—C & K Model W3 Convert. Looms, 82"—1947-8
148—Spdls. Whitin Schweiter Hi Speed Quillers—1947-51
1—Abbott Paper Cone Winder, Model #65, 100 spdls., 8" 4' cone, Age 1948
1—B-C Portable Tying-In Machine, Model LC—Age 1951
4—Power Inspection Tables, 80" wide, 3 HP gear motor
1—Obermier Stainless Package Dye Machine—300 lb.
2—Smith Drum Stainless Package Dye Machines, 500 lb. 2 carriers each—Age 1947
2—Proctor & Schwartz 6 Drawer Tray Dryers
1—Holdsworth Intersecting Bradford Gill Box—1953
1—Fletcher Double Deck Uptwister, 40 spdls.—1953
1—Brownell Twine Layer, 12 spdls., ½ lb. tubes
3—Reiner Hi-Speed Warpers, 54¼" wide, 30" dia. flange, elec. beam doffers—1950-1
1—Cocker Hi-Speed Warper, Model SD-40, 54¼" wide, 36" dia. flg., 1957
10—Sets Cloth Guiders, air and spring type
1—Franklin 8-color Print Machine, 67" wide

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1—BALING PRESS, Galland-Henning, open sides, Platen 36"x56" Motorized.
1—CLOTH BATCHER, 80", 2 Roll, adjustable tension, 28" dia. Batch.
1—BRUSH, P&W., 66", 2 Section, 4 Nylon Bristle B.B. Rolls, 8½" dia.
1—CONVEYOR, Sargent, Portable type, 1952, 20' long, 30" wide, Hyd. lift.
12—COILERS, Whitin, for 12" dia. x 36" high Cans.
2—CHINCHILLA MACH., Kenyon, 14" x 63" platens, tension leton, draft roll.
1—DOUBLING, MEAS. & WIND. MACH., P&W., Springfield Model, 66".
1—CENT. EXTRACTOR, Am. Laundry Mach. Co., Notrux Model, Safety Cover.
1—PIT FEED, Sargent, Wet type, S. S. Pinned Vertical Apron, V-S M.D.
1—PR. GUIDERS, Butterworth, Air Operated, on adjustable stand.
1—LAPPER, P&S., 60" Camelback type, Model 141, floor apron.
20—AUTO. LOOMS, C&K, (Veribest), 82", 4x1, 25 H. H., B.B. Crank Shafts.
1—MOISTENING MACH., C&M., 72", disc type moistening roll, 1 Hp. M.Drive.
1—MEASURING & INSPECT. Mach., Measuregraph, 64", tube to tube, V-S Drive.
1—MEASURING & ROLLING MACH., P&W., AWC Model, Manayunk rollup device.
1—NAPPER, Knitgoods, D&F., 90", 20 gear driven rolls, V-belt Motor Dr.
1—NAPPER, P&W., D.A., 72", 20 Roll, 10 Hp. M.D., Folder takeoff.
1—Hi-torque NAPPER, Gessner, 24 Roll, 80", 1959 Model, gear driven rolls.
2—PNEUMAFIL SYSTEMS for Whitin Model E Spinning Frames, 96-150 Spindle.
1—MIXING PICKER, C&M., 40", Atlas #1, 12 Bar B.B. Cyl., Feed Table.
1—RAG PICKER, Dodge, 30" dia. B.B. Cyl., steel faced lags, feed table.
1—WASTE PICKER, C&M., Atlas #2, type FL, 24", wood lagged pinned cylinder.
1—ROTARY STEAM PRESS, Voelker, 86", 15½" dia. Cyl., brass pressure plates.
1—SCUTCHER, Arlington, 76" c/compression rolls, brass beaters, scrimp rolls.
4—SEWING Machines, Merrow, portable tables, Models 60ABB, 60ABBY, 60-ABBY-4.
1—PILE FABRIC SHEAR, C&M., 66", flat blade, uncurling device, motor drive.

SPINNING FRAMES
4—D&F Model E WOOL SPINNING FRAMES, 120 Spindles each, 5" ring, 6½" ga. Two 1945 model, two 1947 model. Can be used for twisting up to 10 turns per inch. Frames equipped with 15 Hp. 220/3/60 A.C. direct motor drives.

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11—Collins Novelty Twisters, 4—5½" Ga.
1—Terrell L Stripper, Ret. Conv., Hoist
4—Barber-Colman Knotters, LC, LS, LL
1—Scott J Tester, 0-150, 0-300 Lb.
24—Stainless Steel Jacketed Kettles
50M—14" Drawtex Heddles in 51" Frames
100M—13" Stainless Steel Duplex Heddles
2M—14" X 36" Fibre Roving Cans
6—Lightnin' Portable Electric Mixers
400—Loom Motors, ½-1½ HP
1—24 Ft. Inclinable Belt Conveyor
10—Chain & Electric Hoists
Heddles, Drop Wires, Gears, Cloth Rolls

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1—12′ S.S. Totally Enclosed Dye Beck, 316 S.S.
6′ to 12′ S.S. lined Dye Becks.
3—Werner 70″, 60″ and 50″ Pneumatic Padders, 2 rubber rolls 12½ tons each.
2—60″, 2—50″ V.V. 3 roll B.B. Calenders.
1—66″ and 1—52″ Hinnekens Boil-Offs, S.S. Chains, S.S. Sticks, 1 extra Boil-Off S.S. Chain.
1—Open Width Washer 65″, 3 compartments, 3 sets of rubber squeeze rolls.
1—64″ x 70′ Enclosed Tenter Range, Pneumatic Padder, Heat Setting Roller Curer, Pre-Heater, Hydraulic Batcher.
1—Tenter Range 50′ x 60″, Hydraulic Padder, Heat Setting Roller Curer and Palmerette.
1—Tenter Range 60′ x 50″, Pneumatic Padder, Maxon Burners and Palmerette.
1—P&S 60′ Loop Dryer, 7 Fan 125″.
1—P & S 30′ Loop Dryer, 5 Fan 101″.
2—V.V. Tenters 60″ x 40′, S.S. Clips.
1—Morrison Tenter 48″ x 50′, S.S. Clips.
1—66″ V.V. Low Palmer and Blanket.
1—66″ Heat Setting Roller Curer.
1—65″ Singer American long flame burners with Motor Driven Brushes.
1—65″ Textile Singer.
3—V.V. 73″ and 58″ Decaturs 950 yd. Blankets each.
1—60″ and 1—50″ V.V. Tubers.
2—68″ and 64″ Progressive Examiners.
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3—60″ Eastwood Floppers.
1—Verduin 66″ Napper.
3—Metropolitan Sewing Machines.
6—S.S. Tanks 24″ x 36″.
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3—Extra Sets of 70″, 60″ and 50″ Pad Rolls.
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Chain Hoists 2 ton and 1 ton.
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24—C&K W2 Convertible Worsted Loom—62″
6—Hacoba Quill Winders—Nar. Fabrics—1953
1—Glodde Quill Winder—16 Spdles—Nar. Fab.—1952
12—#3 N.E. Butt Braiders—16 Carrier
20—Universal #50 Coners, Pineapple, Troughs
1—Scott J3 Yarn & Cloth Tester
24—Walton 110 V. Humidifiers
1—Cocker H.S. Mill Rebeamer-Reeves
1—Hermas 80″ Cloth Insp. Machine
50—Milton Steel Beams, 24″ Heads for 40″ X.D. Looms
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1—Werner 56″ 15 Ton Padder
5—Werner—70″ Dye Jiggs
1—Patterson 64″ Tuber
2—Van Doorne 14′ SS dye becks
2—12″ Blickman enclosed dye becks
2—VV—60″ Tensionless Tubers
1—Progressive 64″ Examiner w/trumeter
2—VV 75″ inspection machines
2—Werner—Dye Jiggs—58″
1—Vertical Set 18-130″ SS cans 35 lb
1—Hinnekens 75″ Boiloff Mach. #212

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18—8′-14′ Dye Becks, enclosed and open.
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2—60″ Pneumatic Quetches.
1—65″ 3 roll Padder, pneumatic.
1—50″ 20 ton Embossing Calender, spare rolls.
2—80″ Double Acting Nappers, new clothing.
1—75″ Emco Batcher.
2—Semi Decators, 54″ and 60″.
1—62″ Selvedge Marking Machine.
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9—Print Machines, 6 to 10 colors, 40″ to 64″ widths.

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Hartford Division, Hartford, Vermont

1—Davis & Furber, 36" Mixing Picker (Rebuilt), 6 bar, four feed rolls, 3 cockspur rolls with new teeth, 1 fluted roll, 24" Buffalo Blower, 48" Bramwell feed, M.D.
4—Davis & Furber, 3 cylinder, 60 x 60 woolen cards, with feeds, Peraltas Tape Condensers, double rub, Waste End Blowers, M.D.
1—Pennsylvania Vacuum Pump, Class 7AT, 24" x 11", 60 HP motor, two Abbington Tanks, 9' x 4' for six sets of 60" cards.
1—Worthington Air Compressor (rebuilt June 1960), 2 stage angle compressor, air cooled, 40 HP motor.
6—Davis & Furber, 120 spindle spinning frames, Model E, 5" ring, 6½" gauge sectional fluted rolls, Murdock Bobbin Holders, 15 HP motors.
1—Collins Fancy Twister, 100 spindles 4½" ring, 6" gauge, 8" traverse, M.D.
3—Whitin Fancy Twisters, Model B, 44 spindles, 4" ring, 7" gauge, 8" traverse, M.D.
1—Abbott 45 spindle quiller for 8¾" bobbins, with transformer, loader, runs from spinning frame bobbins.
1—Whitin, 6 spindle Schweiter winder, Model MS M.D.
2—Davis & Furber, 100" Dressing Frames, hack stand, neck reed, compressors, beamers, M.D.

Also at other location

2—James Hunter Garnetts, Bramwell Feed Boxes, Breasts, four 60" x 30" cylinders, M.D.
2—Economy Balers (1—Upstroke; 1—Downstroke)
2—Saco-Lowell Kitson Rag Pickers, M.D.
1—Tow Motor Fork Truck, 2000# capacity

PORTLAND WOOLEN MILLS

Portland, Oregon

8—C & K, W-3, 92" looms, convertible, low roll take up, M.D.
16—Whitin, Model E woolen Spinning Frames, 120 spindles each, 5" ring, 6½" gauge, Continuous fluted rolls, Automatic ring oiling system, M.D.
1—James Hunter Cloth Squeeze rolls 90" x 18" rubber rolls, Model G with Scray and swing folder, M.D.
1—Parks & Woolson, 2 cylinder wet brush, 69" x 36" M.D.
1—James Hunter, 8' Dolly Washer, rubber rolls, 20" dia. M.D.
1—Riggs Lombard, #65 Fulling Mill, S.S. throat, trap, doffing roll, guides, lining rubber rolls, M.D.
2—Riggs Lombard, Fleetline, All Stainless Steel, Stock Dye Kettles, 500# capacity, with self balancing tops.
1—James Hunter cloth dryer, 8 pass, 60" to 102" with overfeed, Automatic Guiders Controls, M.D.
1—Gessner, 72" x 20" Hi speed press, P.D. with 72" S.S. Scray, M.D.
1—P & W, Tenter Raising Machine and Tiger, 72" wide, M.D.
1—Allen dressing cone creel 500 live ends, 1000 spindles, stop motions w/18 electric fans for lint control.

We also offer for sale in conjunction with W. S. Hill Assoc., Norwich, Conn. TUrner 7-3561

AINSLEE SPINNING MILLS

Norwich, Connecticut

3—D & F, 48" x 60" 3 cylinder cards, feeds, Broad Band Feeds, (1—Peralta), D & F tape condensers, single rub with 96 ends.
1—Universal Roto Coner, Year 1959, Model 44, 30 spindles, 9"36' Cones, 6" traverse, waxing attachment, M.D.
6—Whitin Model D 96 spindle spinning frames, 4" ring 5½" gauge

CIRCLE 424 ON READER SERVICE CARD

14-SUPERLOFT UNITS-MOD. 550—1957-9

2—U. S. High Speed Doublers—10" Trav.—4¾" Rings—1958

1—S.S. AUTOCLAVE—64" x 73" CONTROLS AND PUMP YEAR 1959

1—Sample Tufting Machine
1—Whitin Model D Ring Twister
11—Unirails—Model 501
6—U. S. HDless Pkg. Twisters
70—Foster 75A Winders
1—Sample-Sipp GK Winder
S.S. Skein Dyers—1-12, 1-10, 1-7 Arm
72—5-6 Looms—60" Wide
10—Atwood & Sipp Redraws
5—Atwood 10B Doublers
4—H&W Steam Boxes
1—60" Fletcher S.S. Extractor

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Complete mill for making stretch yarn. Complete mill for a slitting & reinforcing metallic yarns.

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3—Abbott 12 sp Radial Quillers, Pinboard
40—Bakelite Cams for #44 Roto-coners
4—Hook reeds, S.S., 8-15 dent
2—Opener, feeder, picker & blending units.
15—Reeves transmissions sizes #00 to #5
2—Cone trucks (metal), 64 spindle
1—Whitin Speedomatic quillers, 1956, 32 sp.
2—Abbott quillers, 120 Sp., pinboard
3—Schweiter winders, 12 spindles
1—350 end Universal creel
1—700 end Sipp Eastwood Warper Creel
10—Diehl Transmitters, 1 HP/550V, XD looms
4—Terrell Roving bobbin strippers
1—Eastwood selvage spooler
6—Terrell quill strippers, models K, L
3—E&H cloth folders, 44" & 47½" air lifts
6—B/C port. warp tying mach. LC, K, LS, LL
1—Staubli shuttle truing machine, NEW
12—del. Whitin bi-coil draw, 1949, 14" coilers
300—Parks-Cramer humidifier heads
—...p winders—2 S/L; 4 Whitin 1949, 9¾" lap
1—Shawmut reed cleaning machine
200—Hank clocks, new and used
100—Pick clocks, 3 shift
1—Cloth trimmer, 72" with Kaumagraph
20—Cloth inspecting machines, all styles
1—Uster warp frame, 100", for tying machine
4—48" Dye jigs, S.S., tandem
6—60 & 80 gal S.S. jacketed kettles
500 M—Quills, 7⅞", 8" & 8¾": #3, 5, 6 butt
3—Haskell-Dawes S formers, 12 x 22", 1956
1—Edmunds high speed layer, bkstd, ⅝" rope
5—Combination rope machines, ¼ to ½" rope
15 M—3 x 9½ spools or bobbins for above
200—11 x 14 spools or bobbins
19—Coilers and reelers for rope, also pirn creels
1—Unitable conveyor used as feeder
12—Platform scales, all sizes
50—Textile mtrs, ½, 3HP @ 900; 20HP @ 1800; 550V New, some TEFC

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2 CHAINLESS TYPE

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FOR SALE

Good Machinery—Low Prices

30—Drying Cans 80" x 30" dia.
1—Sipp E. Hy Speed Warper 83".
2—60" Waldron Coating Heads
2—Air Perme-ator Humidifier Units.
1—VV 3 Roll Calender 60"
51—Spdle Whitin Schweiter Auto Quillers.
1—RB&F 44" 5 color print machine.
1—Hinnekins Moire Calender 50" New.
1—Hercules Extractor 50" Copper Basket
2—SS Tru Shade 6' Dye Tubs, with SS Hoods
1—Johnson Sizer, 5 Copper Cans 66" Wide.
1—Ingersol Rand 75 HP Air Compressor.

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Blanket Division of

ORR FELT & BLANKET CO.
Piqua, Ohio

(Note: The Felt Division is *NOT* for sale)

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BENOIT SYSTEMS: 2 units, one with 6 bar picker, one with Fearnaught.

CARBONIZER UNIT: Hunter, 1950, 90" wide with tanks and baker.

CARDS:

8 Sets of 3 cylinder cards, 60 x 60, including some D & F T Slot cards, each equipped with late model offset weight pan, Bramwell feed, breast, broad band intermediate feed, peralta and double rubb tape, motor drives.

CONDITIONER: Yarn, H&W ST2, 1952 model.

CONER: Abott, 101 Spindle, with 2 hoists, from frame bobbins to wood cones, 1954.

CRUSH ROLLS: R&L, 3 section, all metal, #2443 with exhaust blower.

DECATUR: P&W Semi, 72" x 36", with Nash L5 pump.

DRYER: Kenyon, 60 yd. capacity, 1953, 96" wide.

DYER: Raw Stock, R&L, 500 lb., stainless, 1952 model.

DYE TUB: Rodney Hunt Trushade, totally enclosed, Stainless, 8' wide.

FULLING MILLS:

Hunter Model 26B with pneumatic pressure. Hunter model 26D (4 compartments) with pneumatic pressure and R&L model 67, all with stainless traps, etc.

LOOMS: 24 W3 110" automatic
12 Warner Swasey 110".

NAPPERS: Woonsocket, 84" and 90" wide, ball bearing, 1951, 24 roll double acting and 20 roll single acting.

PRESS: Gessner, PD20, 72" wide, with 5# reeves drive.

SHEAR: Davidson High Speed, 2 blade, 66½".

SHEAR: Davidson High Speed, 1 blade, 72".

SPINNING FRAMES: 6 Whitin 120 spindle Model E, 1945, 5" ring, 6½" gauge.

WARPER: Whitin High Speed, 134" wide, with McBride magazine creel, 1953.

WINDER: Schweiter Whitin, 45 spindles, complete with automatic loader.

FROM OTHER SOURCES . . .

A PARTIAL LIST

WOOLEN CARDING & SPINNING

3—Cards, Duesberg Bosson, 1953, 80" wide, complete with tapes peraltas and motor drives.
6—Cards, D&F, 2 cylinder with double rubb tapes, 60x60.
3—Cards, D&F, 1948, 60x60, 3 cylinder with peraltas and double rubb tapes.
4—Spinning Frames, D&F, 1948/49 Model E, 5" ring, 120 spindles.
1—Ceiling Condenser, P&S, single drum, 1954.
1—Scouring Range, Hunter, 48", 3 bowl.
2—Mixing Pickers, P&S 48", high speed, 8 bar.
7—Peraltas, 60".
1—Picker, Fearnaught, 60".
1—Stripper System, 100 HP motor.

WORSTED SYSTEM

5—Cards, SACM, 60" wide, metallic clothed.
8—Whitin, 1952, Long Draft F2 Frames.
3—Turbo Synthetic Staplers, 1954/56/58.
16—Pin Drafters (Also Holdsworth) to 1954 models, duos and quads.

COTTON SYSTEM

Note: The selection of cotton machinery is too extensive to list in this publication. Ask us for details on any equipment you might need.

FINISHING AND MISCELLANEOUS

Cutter, Taylor Styles Model 411, new.
Double Doubler, C&M, 100".
Doubling & Rolling Machine, P&W 66".
Dryer, Loop, National 1954, 12 fan, 108".
Garnett, P&S, 1954, double doffer with aprons.
Jiggs, Werner, 60" and 70" and others.
Padder, Butterworth, 72", 3 roll.
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